

Digital Entrepreneurship



An 'Idea Bank' for
Local Policymakers

nesta

About

About this 'Idea Bank'

This guide was written by Christopher Haley, Siddharth Bannerjee, Simona Bielli, Jonathan Bone and Yann Finger from Nesta, with funding received from the European Union's Horizon 2020 research and innovation programme under grant agreement 645099. This report reflects only the authors' view and the European Commission is not responsible for any use that may be made of the information it contains. It is made available under Creative Commons Attribution NonCommercial ShareAlike licence (CC-BY-NC-SA). This permits reuse and alteration of the work for non-commercial purposes provided that the authors are attributed and new creations are licensed under identical terms. For commercial exploitation, please contact Nesta.

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About Nesta

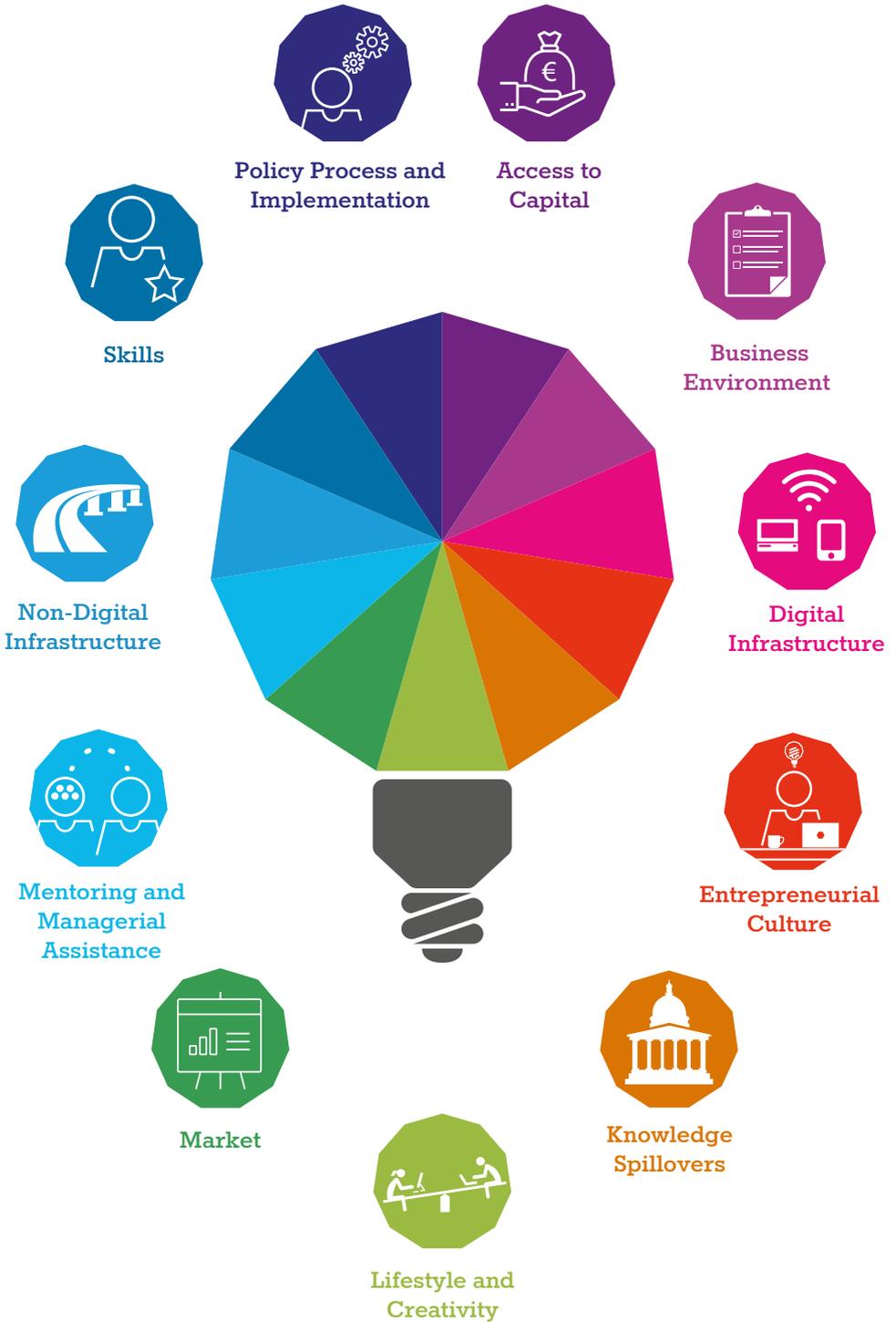
Nesta is an innovation charity with a mission to help people and organisations bring great ideas to life. We are dedicated to supporting ideas that can help improve all our lives, with activities ranging from early-stage investment to in-depth research and practical programmes.



About the European Digital Forum

The European Digital Forum is a think tank led by the Lisbon Council and Nesta, in collaboration with the European Commission's Startup Europe Initiative. It is dedicated to empowering tech entrepreneurs and growing Europe's digital economy.





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Introduction

The recently-launched *Scale Up Europe Manifesto* explains why Europe urgently needs a new initiative to help entrepreneurs grow their ideas.¹ It provides a roadmap for European and national stakeholders to help entrepreneurs – not just in starting their businesses but, importantly, in scaling-up and becoming international.

The starting and scaling of new ventures is of such importance to our economic well-being that it must be on the agenda of policymakers at all levels. Thus, whilst national policy is vital, we must remember that entrepreneurs are also affected by their local environment. Sub-national bodies like chambers of commerce, cluster managers, councils and local regulators – as well as universities and big business – all can influence entrepreneurs' decisions and affect the framework within which startups thrive or die.

Digital entrepreneurship is particularly significant given the role of digital technologies in enabling innovative business models and driving economic growth. The unique characteristics of

digital goods and services frequently rewards the first to scale, and often means that the winner takes all – hence, a slight policy edge may produce disproportionate gains. There is also evidence that startups in general are more sensitive than incumbent firms to the policy environment, meaning that policymakers' actions – or indeed inaction – can have a strong effect on startups.²

This guide – created independently from the Manifesto, but very much in accordance with it – is therefore intended specifically to help local policymakers and influencers create better conditions for entrepreneurship at the regional or city level. Intended as a 'bank of ideas', it draws together examples of policies and initiatives that support startups, especially digital startups, in an effort to provide inspiration and options.³

“We must create a better, more fertile environment where our undoubtedly brilliant, creative entrepreneurs can build the global champions, create the jobs, develop the ‘next big thing’ and deliver the prosperity our society will demand in years to come.”

Scale Up Europe: A Manifesto for Change and Empowerment in the Digital Age

What this guide will not cover

This guide is not concerned with innovation policy as a whole, nor does it deal specifically with policy relating to smart cities, digital government, digital democracy or digitisation of

existing industries, except inasmuch as these topics relate to startups. Whilst we have included evidence in favour of some policies, proper evaluation is beyond the scope of this guide.⁴

How this guide was compiled

This repository builds on prior studies of digital innovation and startups, including the European Digital City Index (digitalcityindex.eu), Nesta's own work on international innovation systems (e.g. in India), reports from the Alliance for Useful Evidence, Nesta's CITIE project, the EDF Startup Manifesto Tracker, the EDF 2016 Startup Nation Scorecard,

the European Commission's Digital Entrepreneurship Monitor, University College London's INTER-CEP catalogue, the OECD's Entrepreneurship at a Glance, as well as primary research with experts from digital hubs around the world. Interviewees and reviewers are listed in the acknowledgements.

How to use this 'Idea Bank'

This document is intended to complement the European Digital City Index (EDCi), an online tool which compares the receptiveness of different European cities for digital entrepreneurship. For cities listed there, the EDCi provides a diagnostic tool with which to identify areas of comparative weakness which entrepreneurship policy may then redress. For cities not listed in the Index, a diagnostic exercise of some kind using the themes of the EDCi may be a worthwhile first step.

Once areas of weakness have been identified, the relevant chapter will suggest some policy options. To help decide which are most relevant, the 'Idea Bank' concludes with some tools to guide users through their decision-making process and think about the key considerations against which policies should be tested (see Annex 1: Policy Action Guide).

The need for policy context

Context matters. Although this guide is presented as a menu of policy options, it is clear that one must be wary of the idea of 'plug and play' policy: what works in one city may fail in another due to incompatibilities with existing laws, policies or social expectations. Some policies may be more appropriate than others given local comparative advantages, regional strategies and existing industries.

It is impossible within the confines of this 'Idea Bank' to examine all the factors which affect policy success. Nevertheless, exploring options is an important phase in any policymaking process, and by grouping policy examples together we hope to stimulate ideas of how similar ends might be achieved in different ways.

The need for an ecosystem perspective

The startup community often talks about 'ecosystems', expressing the notion that startups do not operate – and certainly cannot thrive – in a vacuum. Rather, they grow best when surrounded by a rich network of different organisations,

both private and public, from which they can draw resources. Some connections may be formal, others very informal, but either way networks and systems play a major role. This has several implications for policymakers:

1st

Policymakers should take a holistic view which tries to address all aspects of the ecosystem, since it is rarely the case that an environment can compensate for the lack of one ingredient through an excess of another (the *European Digital City Index* was constructed using a method that deliberately penalised 'weak links', for this reason). Some initiatives, such as accelerators, may be inappropriate for a city if other core elements of the ecosystem are absent.

2nd

Policymakers should try to take a systemic view of impact resulting from policies. Policies which promote elements of the ecosystem at the expense of other components – for instance, promoting university startups whilst ignoring the role of other entrepreneurs – may have deleterious consequences. Ecosystems should ultimately become self-perpetuating.

3rd

It is the authors' view that entrepreneurship policy should not be pigeon-holed as a subset of business policy, but seen as a cross-governmental issue which should also be the concern of science and technology policy, education policy, planning and multiple other areas. 'Joined-up' government is therefore important.

Thinking like a Startup

Startups have many constraints, especially time and money. In turn, this limits their absorptive capacity — the ability to identify and assimilate external knowledge — and means that every action carries a significant opportunity cost.⁵ It also means that search costs (finding information) and transaction costs (doing deals; obtaining licences) are disproportionately expensive.

It is important for policymakers to remember this and minimise such costs where possible. For instance, public procurement can be a powerful

tool for supporting young firms. However, this is often accompanied by lengthy qualification processes and complex legal agreements which are disproportionately costly for small firms and hence deter startups from applying.

Similarly, policymakers wishing to support startups should make a special effort to advertise relevant initiatives and reach out to the companies concerned; it should not be assumed that startups will automatically be aware of support mechanisms, or have time to comment on consultations which affect them.



Startups versus Scale-ups

Too many startups start, but never scale. However, the economic consequences of encouraging more startups to become high-growth business are hugely significant.⁶ In ecosystems which already offer ample support to early-stage startups, the emphasis of some entrepreneurship policy has thus shifted away from the early stages of new company formation towards later-stage 'scale-ups'.

We take the view that policies which support scale-ups rarely conflict with startups, so that it is seldom a matter of choosing one over the other. Moreover, without startups there will be no scale-ups. However, it is clear that, as firms

grow, they face different challenges which require different tools. For instance, early-stage startups may be preoccupied with business model validation and angel investment, whilst scale-ups are more likely to be concerned with senior talent acquisition, managerial skills and growth capital. Promoting accelerators and coworking spaces, say, may be beneficial for early-stage startups, but much less helpful for scale-ups.

Policymakers should therefore consider the entirety of the entrepreneurial journey, be conscious of the different needs at different stages and consider whether their mix of policies helps entrepreneurs not only to start but also to scale.

Startups versus SMEs

When it comes to startups, many policymakers fail to distinguish between startups and other small or medium enterprises (SMEs). This is understandable, since many startup definitions relate to their growth ambition or other attributes which are difficult to observe, but it may also be unhelpful: the challenges faced by a young,

innovative, high-growth startup are often quite different from those of an established SME or a small firm with no growth ambitions.⁷ For that reason, policies aimed at promoting innovative startups are likely to be somewhat different from policies designed to assist established small firms.⁸

1 Access to Capital

Why does this matter?

It is clear that well-developed financial markets facilitate innovation in firms.⁹ Whilst digital startups may be less research-intensive than biotech startups, say, it is often the case that their business models depend more heavily upon network effects. Thus whilst some successful digital startups have managed to grow through 'bootstrapping', funding is required by the majority of firms in order to reach scale. Realising this, policymakers have pursued a wide variety of strategies to support early-stage companies through government grants, and to incentivise private investment in startups through loan guarantee programmes, co-investment funds and tax relief schemes.

What is less clear is the importance of geographical proximity. Many venture capital firms and angel investors consider geography as one of their investment criteria, not only because physical proximity enables more frequent meetings and mentoring, but also

because they rely upon local networks for knowledge of upcoming deal-flow. However, 'local' is a relative term: in the comparatively underdeveloped venture capital markets of Eastern Europe, VCs are more likely to take a national perspective than in Western Europe.

Because of the nature of financial systems, many policies are necessarily national. However, some financial incentives can be administered on a regional level – though this does risk duplication of effort or potential competition between different agencies pursuing similar goals.¹⁰ Public policies typically aim to avoid 'crowding out' private money, acting instead where there is either a clear market gap or the potential for stimulating further private funds. Startups may also benefit from greater signposting towards sources of finance: although many do not think they need advice, there remains a significant lack of awareness about non-bank sources of finance.¹¹



Debt

Debt is the most common means of external funding for small businesses in Europe.¹² This may include bank overdrafts, credit card finance, loans from family and colleagues, bank loans and mortgages. Such debt is often personal in nature, frequently secured using the entrepreneur's personal assets (e.g. their home) as a guarantee. This entails a significant personal risk for the entrepreneur – greater than other forms of finance – but has the benefit that the entrepreneur is not required to give up equity or control of the business.

Startups often struggle to raise debt because they lack the assets required to secure a loan or because banks are reluctant to lend to businesses without a proven track record.¹³ In addition, there is evidence that the more innovative firms

are actually less likely to secure loans than their peers.¹⁴ Importantly, a significant proportion of small firms (40 per cent according to one study) apply for finance within a week of needing it, meaning that speed of decision-making is important.¹⁵

State support is typically focused on increasing the supply of capital (either directly or via commercial banks) and incentivising other financial institutions to lend money through standing as guarantor for loans. National examples include the Danish Growth Fund ('Vækstfonden'), the British Business Bank (which is government-owned, invests via intermediaries such as banks, leasing companies) and the Dutch SME Loans Guarantee Scheme ('BMKB'). More localised examples are given below:

Berlin Start, Berlin, Germany

The state supported Guarantee Bank of Berlin-Brandenburg (Bürgschaftsbank zu Berlin-Brandenburg) supports entrepreneurs in Berlin by providing them with guarantees for loans. The programme guarantees up to 80 per

cent of loan amounts up to a total of €1.25 million. Loans must be invested in Berlin and can be used for starting a new business, acquiring existing businesses, or for other projects up to five years after a business is established.

Brupart, Brussels, Belgium

The Brupart initiative is a subsidiary of the Regional Investment Company of Brussels, launched in 2014 to aid small and medium-sized enterprises (SMEs) access to debt finance. The initiative has two loan schemes for firms located

or active in the Brussels Region:

'Ready BoostMe' provides loans between €10,000 and €50,000 for freelancers or small businesses under four years old. Individuals do not require any collateral to apply, but must part-

match the loan with their own funds, depending on age: entrepreneurs under 30 years old must make a 10 per cent contribution to total project costs, rising to 25 per cent for those over 30.

'Brufin' provides loans between €10,000

and €200,000 for small and medium sized companies. The loan can offer a maximum of 50 per cent of the total financing needs of the company, with the SME itself making a 10 per cent contribution to the cost of the project, and the remainder being lent by another banking organisation.

Equity Investment

Equity is an important type of funding mechanism for early-stage companies which are potentially high-growth but also high risk, and so less attractive to banks and other loan providers. One advantage of equity financing is that it spreads the risk: if the business fails, the equity investor must accept their loss. However, many entrepreneurs are reluctant to give up equity as it typically involves some loss of control of the business.

A hybrid of debt and equity is 'convertible debt' – that is, loans which convert to equity at a subsequent fund-raising event. This has pros and cons for both investors and startups, but can often be quicker and simpler to arrange than equity, as it postpones negotiation of valuation and detailed investor rights.

Equity finance is available through a number of sources, including business angels, venture capitalists (VCs), stock markets and crowdfunding platforms. Importantly, equity investors need confidence in the ability to exit their investment eventually – that is, to sell their stake to someone else in exchange for cash. Properly functioning primary and secondary markets therefore encourage angel and VC investment. Given that most European exits are actually trade sales, corporate incentives are also important.

Historically, there has been a significant gap between European and US VC

funds, with total European investment comprising a fraction of the US, as well as underperforming in terms of financial returns (though this gap is closing).¹⁶ There is also evidence of a relationship between fund size and performance, with some of the lower performance of European funds being blamed on their smaller size.¹⁷ In addition, there is a common trend of funds moving to later-stage investment, thus creating recurrent gaps in early-stage investment. Because of this, public policy typically focuses on incentivising private sector investment, especially at the early stages, as well as increasing fund size.

Government agencies have thus become the primary source of new European venture capital in the past decade.¹⁸

Evidence about whether government venture capital 'crowds out' or 'crowds in' private VC is currently mixed, and seems to depend on the details of the scheme.¹⁹ To get closer to 'smart money', however, there has been trend towards public funds co-investing with private investors (as with the £100 million Business Angel Co-Investment Fund in the UK, or the €42 million COMPETE business angel co-investment programme in Portugal).²⁰ Some such schemes have had a positive impact on firm performance.²¹

Incentives such as the UK's Seed Enterprise Investment Scheme (SEIS)

and Enterprise Investment Scheme (EIS), which offer tax relief to investors, have been shown positively to stimulate early-stage angel investing in the UK.²²

Much of this occurs at a national level – especially since regional funds may be unable to find quality dealflow and achieve optimal scale – but there are some interesting sub-national examples:

Innovation Starter Fund, Hamburg, Germany

The Innovation Starter Fund makes equity investments in young (less than six years old), small (less than 50 employees), technically innovative companies based in Hamburg with the aim of supporting them to develop their research and development activities. The fund can invest up to €0.5 million

per financing round, up to €1 million per startup, and has a total budget of €12 million. The Innovation Starter Fund is an initiative of the Departmental Authority for Economics, Transport and Innovation and was funded by the Free and Hanseatic City of Hamburg and the European Fund for Regional Development.

London Co-investment Fund, London, UK

The London Co-investment fund is a £25 million seed fund for high-growth businesses that are based in London and operating in the digital, science or technology sectors. Its aim is to enable quality startups who can raise funds, to raise significantly more. It

operates by investing public money in funding rounds led by competitively-selected co-investment partners (in roughly a 1:3 ratio of public to private money), with all investment decisions made by the partners.

Istanbul Venture Capital Initiative, Istanbul, Turkey

Istanbul Venture Capital Initiative (iVCi) is a €144 million fund-of-funds and co-investment programme funded by the Turkish governmental agencies and the European Investment Fund, along with private institutional investors. The aim

of iVCi is to build the venture capital industry in Istanbul. Since its launch in 2007, iVCi has successfully committed to ten portfolio funds, leveraging over €1.5 billion of third-party capital.

Crowdfunding

Early-stage businesses are increasingly turning to new forms of alternative finance in order to meet their funding needs. One alternative finance mechanism – crowdfunding – has grown particularly rapidly in the last few years providing around €5.4 billion of funding to European businesses and individuals in 2015.²³

To date, the vast majority of money raised via crowdfunding platforms involves either equity models or peer-to-peer (P2P) lending. Crowdfunding may therefore be viewed not as an alternative to equity or debt, but a new mechanism for raising these types of finance. Consequently, many initiatives designed to encourage equity and loan investments in startups more generally (as with EIS and SEIS, mentioned above) will also be applicable to crowdfunding. Nevertheless, the rise of crowdfunding presents new ways to encourage investment in startups, particularly from less wealthy investors for whom such investments may previously have been out of reach.

The most sophisticated crowdfunding market in Europe is currently the UK, where crowdfunding has seen very rapid growth (ca. 400 per cent Compound Annual Growth Rate) over the last five

years, and over £3 billion raised in 2015.²⁴ This is due, in part, to a relatively 'light-touch' approach to regulation: as of 2014, P2P lending and equity-based crowdfunding have been regulated by the Financial Conduct Authority (FCA), the major financial regulatory body in the UK. But donations and rewards-based crowdfunding models, which do not involve any form of financial return, remain unregulated. The resulting regulatory framework (Regulation PS14/4), is widely viewed by the nascent industry as offering an appropriate level of protection to investors without stifling growth. Growth is expected to be further boosted by the introduction of an 'Innovative Finance ISA' in April 2016, which allows investors to put a tax-free 'wrapper' around P2P loan investments, exempting the loan interest from taxation.

From a regional perspective, local governments and grant-makers are increasingly using such platforms to co-invest with private funds. Such 'matched funding' schemes can make public money go further, help direct money to projects that are backed by the public, and get more people involved in developing and supporting startups.

Crowdfund Angus, Angus, Scotland, UK

In 2015, Angus Council launched a matched crowdfunding scheme which provides extra funding to business projects based in the Angus region that are crowdfunding on the Crowdfunder platform. Through this

scheme, Angus Council provides up to 50 per cent of a projects crowdfunding target (up to a maximum of £1,000) to projects that demonstrate a high level of support from 'the Crowd'.

Grants

Since they do not require payment of interest or equity, grants are the 'cheapest' form of financing from the entrepreneur's perspective. As such, they are understandably popular with early-stage startups – despite often involving stiff competition, time-consuming applications and restrictions on the use of funds. Grants are often used to encourage growth in sectors which satisfy a greater societal need, and so may be targeted at entrepreneurs belonging to a specific demographic or to businesses with a specific purpose.

Although winning a grant may give confidence to investors and banks, thus making it easier for the business to raise further finance elsewhere, reliance on public grants may be a warning signal to private investors that insufficient consideration has been given to the ultimate commercial viability of the venture. From a policy perspective, therefore, the risk of encouraging reliance on public money is often countered by requiring grants to be matched by private money.

Call Start Tech Vienna 2016, Vienna, Austria

Call Start Tech Vienna 2016 is a grant competition being hosted by the Vienna Business Agency and aims to support 'trendsetting' research and development (R&D) projects from startups in Vienna. It offers co-funding of up to €500,000 to advanced technology projects which have the potential of leading to product, service and process innovations and can go towards internal and external personnel costs and the protection of R&D results. The portion of the project that the Call Start

Tech grant can fund varies depending on the size of the business; 45 per cent for small businesses, 35 per cent for medium-sized companies and 25 per cent for large businesses. The initiative encourages cooperative research projects by offering a possible supplement of up to 15 per cent to projects involving at least two stand-alone companies working together. The programme also offers a bonus of up to €10,000 to projects led by a woman.

i.JAM Micro-funding Initiative, Singapore

The Interactive Digital Media Jump-start and Mentor Programme was set up by the Interactive & Digital Media Programme Office and funded by the Singapore National Research Foundation. Its aim is to encourage innovation and entrepreneurship in the interactive digital media sector. Part of this programme, the i.JAM micro-funding initiative, offers grants to R&D-intensive startups. The programme has appointed several incubators to identify suitable startups and administer the grant funds alongside their normal support programme. The grant initiative works in two tiers: in the

first tier, the programme provides a grant of S\$50,000 (around €33,000) to early-stage companies which is matched by a S\$10,000 (around €6,700) investment from the incubator (typically for 8 per cent equity). In the second tier (iJAM Reload), the programme provides the startup with about S\$100,000 funding which is matched by an investment of around S\$100,000 (around €670,000) from the incubator (for further equity). Since its launch in 2007, more than 300 startups have been funded by the first tier of the programme and more than 50 have been funded through the second tier.

YouWIN!, Nigeria

YouWIN! was founded in 2011 to address the growing unemployment rate in Nigeria. Led by the Nigerian government, this unique initiative distributed 1,200 grants of 10 million Naira each (around €28,000) to young Nigerians with the aim of empowering young Nigerians to start or expand existing businesses. Over 24,000 hopeful entrepreneurs submitted business plans to the competition. The highest scoring plans were automatically funded, though perhaps the most interesting thing about the programme is that 729 of the 1,200 winners were

randomly selected from a group of 1,841 runners up. To some surprise, the random funding initiative was successful: a study by the World Bank found that winning the competition resulted in a 37 per cent point increase in the likelihood that a new firm would still be operating three years later. The study also found that the competition was responsible for the creation of 7,000 new jobs, meaning each job cost about \$8,500 (€7,624) to create; cheaper than most other job creation policies in developing countries.²⁵

Hong Kong

Hong Kong's startup ecosystem is growing rapidly. According to the 2015 Global Startup Ecosystem Ranking, it is the 25th largest startup ecosystem in the world in terms of size and 5th fastest growing in terms of expansion.²⁶

The financial technology ('fintech') and internet of things ('IoT') sectors, in particular, have boomed. Hong Kong is a

major financial centre, which makes it an attractive place for fintech startups looking to collaborate or sell to banks or insurance companies. In addition, its proximity to the Chinese manufacturing hub of Shenzhen makes it an inviting location for IoT companies in need of rapid prototyping. New businesses in Hong Kong also benefit from low tax rates, modern infrastructure and ease of company formation.



Despite being a financial hub, many Hong Kong startups report problems in raising seed funding. The reasons are unclear, but one possible explanation is that the financial and real estate markets offer much more attractive investment opportunities.

Whatever the cause, however, the Hong Kong government realised that additional support was needed, and so set up several investment funds, grants and loan guarantee schemes to try and improve the situation for tech startups trying to raise funds in the city. These included:

The Innovation and Technology Venture Fund is a HK\$2 billion (around €230,000) government fund set up in 2016 to co-invest in technology startups with private venture capital funds on a matching basis. The aim of the fund is to encourage further private investment in local startups.

The SME Export Marketing Fund offers grants to SMEs allowing them to participate in overseas exhibitions, business missions and to place B2B advertising. The SME Export Marketing Fund will fund up to 50 per cent of expenditure, up to a maximum of HK\$50,000 (around €5,800) per business with the aim of helping them to expand their businesses.

The Enterprise Support Scheme (ESS) provides grants of up to HK\$10 million (around €1.2 million) for businesses of all sizes to invest in research and development (R&D) projects. Grants are given on a one-to-one matching basis alongside the businesses' own project spending. Projects approved for ESS may apply for extra financial support under the Internship Programme which funds each project to hire up to two interns.

The SME Loan Guarantee Scheme aims to help SMEs to secure loans by providing them with a guarantee for up to 50 per cent of a loan, to a maximum total guarantee amount of HK\$6 million (around €690,000). Loans may be used for business installations and equipment or working capital.

The Cyberport Creative Micro Fund offers a grant of HK\$100,000 (around €11,600) to high potential digital tech startup projects. The grant is given over a six-month time period, over which time successful applicants should produce proof of concepts and prototypes.

2 Business Environment



Why does this matter?

Registering a new company can be a bureaucratic process – and after formation, startups must then deal with the associated administrative burden of tax, employment law, social security, business rates, and so on. Policymakers should be acutely aware that, for a startup, every activity has a high opportunity cost. Evidence clearly shows that a lighter regulatory burden, lower taxes and less restrictive labour market regulations are associated with more startups being created.^{27, 28, 29}

Much of this regulation is imposed at the national level, but local authorities may have some discretion over some tax rates and interpretation of regulations.

There is also an important role for government at all levels to try to reduce regulatory uncertainty. For example, cryptocurrencies such as Bitcoin have huge potential for innovation but have been hampered by unclear legal status. The 2016 announcement by the Japanese government that it intends formally to recognise Bitcoin as a currency, and integrate it into the banking system via new regulations, will mean that Bitcoin can be accepted as a legitimate form of payment. This will undoubtedly strengthen the position of digital currencies and fintech startups, as well as the many startups seeking to use blockchain technologies for non-financial applications.



Tax Incentives

We differentiate here between tax incentives for investors, as discussed in the previous section, and those aimed directly at startups. Many startups focus on growth and gaining traction in the first few years of their existence, rather than profit-generation. Supportive policies will acknowledge this, aiming to improve cashflow and encourage reinvestment of any profits, whilst minimising the total tax taken from young firms (including quasi-taxation in the form of licences). Various

national schemes exist which offer tax relief on income for new firms and tax credit for innovation-related expenditure. Tax credits for research and development, in particular, are a common policy tool to support innovative firms: Latvia, for instance, offers a 'super-deduction' of 300 per cent for qualifying R&D expenses, whilst Russia is currently experimenting with reduced social security contribution rates specifically for companies involved in software development.³⁰

STARTUP-NY, New York, USA

Startup NY is a scheme open to new businesses (especially high-tech businesses, including data processing and many digital firms) in New York State that are partnering with a New York State college or university. The scheme pledges a ten-year exemption from various taxes including business tax; excise tax on telecommunication services; metropolitan commuter transportation district (MCTD) mobility tax; sales and use tax; real estate transfer tax; and even personal income taxes for specific types of new employee. Significantly, it includes a strong

growth incentive: in order to qualify for tax relief, the business must maintain net new jobs after its first year of operation.



Latvia offers a 'super-deduction' of 300 per cent for qualifying R&D expenses

Corporate Tax Exemption, Estonia/India/Singapore

The Estonian corporate tax system was significantly reformed in 2000 with the objective of accelerating economic growth by making more funds available for business investment. One significant feature is that corporate taxation is not payable when profits are earned, but only when they are distributed.

Similarly in India, in 2016 the government passed its Startup Action Plan, a provision of which exempted startups from paying

any tax in the first three out of five years of operations (a minimum alternative tax does, however, still apply to them). A variation of this policy is in effect in Singapore, where the government passed an SME-friendly law that exempted qualified startups from corporate tax on the first S\$100,000 of their income and provided a further 50 per cent exemption on the next S\$200,000.

Regulatory Sandboxes and Testbeds

Highly-regulated industries can be an especially challenging environment for startups. Complex regulations often favour incumbent firms who have more experience and legal resources. Testing prototypes in a 'live' environment can be particularly difficult. To help with this, some regulators have established 'sandboxes' where companies in the initial

stages of development can experiment without the normal regulatory requirements in place. Typically, these do not absolve companies from all responsibility: as a matter of policy, they should not transfer risk to consumers nor remove individuals' private right to redress if companies are grossly negligent or fraudulent.

Fintech Regulatory Sandbox, UK

To encourage innovation and competition in financial technology, the UK's Financial Conduct Authority (FCA) introduced the concept of a 'regulatory sandbox' in 2015, based on an analogy with medical trials. The sandbox provides

those admitted to it with "a 'safe space' in which businesses can test innovative products, services, business models and delivery mechanisms while ensuring that consumers are appropriately protected".³¹ By providing individualised guidance,



The sandbox is a 'safe space' in which businesses can test innovative products, services, business models and delivery mechanisms while ensuring that consumers are appropriately protected

waivers and modifications of certain rules, along with 'No Enforcement Action' letters, the FCA hopes to encourage fintech firms to innovate in a near real-

world environment, without immediately incurring all the normal regulatory consequences of pilot activities.

Digital Health Valley, Belgium

As part of an initiative called 'Digital Health Valley', launched in 2016, the Belgian Government allocated €3.25 million for piloting various digital health apps. Proposals were invited from anyone working the Belgian health sector who wants to use a mobile application (whether on a smartphone, tablet or smartwatch) in their role. Apps must meet certain minimum privacy and

security requirements, but otherwise do not need regulatory approval. The allocated funds will be spent not only on funding the chosen projects, but also in reimbursing healthcare providers who are willing to share their data with app developers. In the first phase, 97 applications were submitted; approved projects are due to commence in 2017 for a duration of six months each.

Fast-track Permits

Sandboxes are one approach to quicker 'real world' testing, which allow temporary suspension of regulations for qualifying firms or technologies. Another approach

is to have dedicated teams which can guide startups through the regulatory processes and help secure approvals.

Valencia Urban Laboratory for Innovation, Spain

InnDEA Valencia Foundation is an agency of the Valencia City Council, charged with promoting urban innovation. To do this, the Foundation tries to make the infrastructure of the city more easily available to entrepreneurs and researchers, so they can test their solutions in a real environment, thus potentially benefitting

both the startup and the wider city. The Foundation facilitates test installations around the city (one recent example was an installation of novel photoluminescent material along 30 meters of cycle path), fast-tracking all the necessary permits from the city on behalf of the startup.

Labour Market Regulation

As discussed in the Skills section below, difficulty in acquiring talent is a major inhibitor for many startups and scale-ups.

Regulation (or deregulation) of the labour market is thus an important issue for firms competing for high-quality talent.

Open Competition and Employee Mobility Clause, California, USA

Restraining contracts or 'non-compete' agreements are often used by employers to prevent employees from working for competing firms for a period after their contract ends, ostensibly to preserve company secrets. California, however, has long held that such non-compete agreements are unlawful (and hence are prohibited by Section 16600 of the California Business and Professions Code, since 1872). The state instead favours 'open competition and employee

mobility'. This has been cited by some as a major reason for Silicon Valley's culture that rewards skill and innovation.³² ³³ Furthermore, the state has shown that it will enforce this law: in 2015, Silicon Valley tech giants Google, Apple, Intel and Adobe were forced to pay a US\$415 million settlement in a lawsuit due to anticompetitive practices including illegal "no-poach" agreements which breached Section 16600.

Italian Startup Act

The Italian Startup Act is a wide-ranging act containing a raft of provisions to make it easier to register, operate and wind-up an 'innovative startup'.³⁴

Measures include: providing exemptions from stamp duty; a public guarantee (up to 80 per cent) on bank loans; free online

company registration; flexible application of Italy's notoriously rigid labour laws; an Italian Startup visa (with evaluation of CV and business model within 30 days); a number of tax relief incentives for investors; and new rules to allow certified portals to offer equity crowdfunding.

At the same time, the government announced a 'Smart&Start' finance scheme, totalling €200 million, to provide zero-interest loans. A greater loan coverage ratio is offered where the majority of the startup's staff are women or below 35 years of age. Where the beneficiary is based in the less economically developed Southern Italian region, 20 per cent of the loan is converted into an outright grant.

Given that the majority of startups fail – a figure of nine out of ten is often quoted, although the actual data is more optimistic^{35, 36, 37} – policymakers also sought to make it easier to proceed with and, more importantly, to bounce back from, insolvency.³⁸ Thus one interesting component of the Act is the introduction of a 'fail fast' procedure, which aims to prevent entrepreneurs being encumbered by lengthy liquidation procedures and instead 'allow them to start a new business as soon as possible without suffering reputational and financial cost'.³⁹

The Act – whose creation was described by policymakers as a laudable but laborious process – was guided by the Minister of Economic Development. It was the culmination of a national strategy that involved sourcing recommendations from a 12-member expert panel and a broader consultation with over 2000 people from the startup ecosystem. It involved designing a new industrial policy at the

national level which brought together several departments to work cohesively to embed favourable conditions for establishment of innovative enterprises.

The Startup Act has won praise from many in the business community who felt it was time the Italian law caught up with the rapid pace of technological and other forms of innovation. But critics have claimed that certain provisions are too restrictive (for example, the definition of what counts as an 'innovative startup') and that there are not yet enough incentives for investors to make it worth their time and money.

Similar acts have been passed in many countries. Where no such act exists, local stakeholders can contribute by lobbying and advocating for such a law by explaining its benefits for social mobility, economic progress and urban development. In the Italian context, city Chambers of Commerce across the country organised seven 'roadshow' meetings to publicise regulations in favour of innovative startups at a local level. Since startups themselves are often reluctant to participate in consultations, it may be helpful for local policymakers to fill the information gap by sharing data and evidence from successful startup promotion schemes which have been undertaken at a local level, and use this to suggest the sorts of provisions they would like to see enacted in such a law.

3 Digital Infrastructure





Why does this matter?

This 'Idea Bank' places specific emphasis on digital entrepreneurship. Wired or wireless internet connection is crucial to these firms – often both for internal operations (e.g. if the startup relies on timely data gathering or cloud-based processing) and for customer adoption (e.g. an app which requires good wireless

connection). However, there are significant differences between cities in terms of broadband speed and availability. Policymakers can assist by smoothing the process of infrastructure development, promoting investment by the private sector and increasing data availability, starting with data which they themselves control.

Broadband

Various studies indicate that broadband connection brings economic benefits.⁴⁰ Whether yet-higher speeds create diminishing returns is still debated, and most likely varies across sectors and across individual firms.^{41, 42} Nevertheless, particularly in the digital sector, increased broadband speeds may be a competitive advantage which enables businesses to explore new services. It would therefore be a reasonable policy to prioritise ultrafast broadband within tech clusters.⁴³

Encouraging broadband installation development is not trivial, however. New fibre, in particular, requires significant investment by firms, which they are reluctant to commit where future demand is uncertain and financial return

unfavourable.⁴⁴ Whilst the principal incentives are usually determined by national telecom regulators,⁴⁵ local authorities can assist in incorporating broadband within local planning strategies; subsidising unprofitable installations (e.g. isolated or rural dwellings); reducing deployment costs by coordinating engineering works; encouraging sharing of ducts; and encouraging cooperation between installers and energy firms (who are increasingly adopting smart meters in any event). In some areas, it is possible for local authorities to charge a levy on new building developments in order to subsidise broadband installation.⁴⁶

Community-owned Fibre Network, Großschönau, St Martin and Bad Großpertholz, Austria

When existing broadband providers were not interested in delivering better broadband to rural villages in Austria, three town mayors decided to form a community scheme, the ARGE Glasfaser Waldviertel (or Forest Quarter Fibre Co-operative).⁴⁷ By collaborating, the town hoped to pool resources and gain economies of scale. To reduce costs further, installation of fibre ducts was coordinated with the

installation of new sewer pipes, with local farmers assisting in areas between towns. Since national internet service providers (ISP) were not interested in the small number of subscribers, the three towns also collaborated with a regional ISP to form an independent company that now operates the active equipment on the network and offers broadband services.

Fibre Network, Oberhausen, Germany

In 2009, the small Bavarian town of Oberhausen found that national telco and cable TV operators were unable

to offer a competitive service, so the city council opened a Europe-wide invitation to tender for a public-private

partnership, to install new fibre-to-the-home (FTTH).⁴⁸ One provider satisfied all the requirements, but had a precondition of a minimum take-up rate of 75 per cent. The municipality turned to the community, enlisting 70 volunteers to canvass local citizens; this volunteer force ran an education campaign and concluded over

800 contracts (from 1,150 households). By the end of 2011, all houses were connected to fibre. This example illustrates how joint efforts between municipalities and communities can help improve the local digital infrastructure, when the market alone fails to do so.

Connection Vouchers, UK

To encourage connectivity, the UK government issued grants of up to £3,000 to help SMEs install superfast broadband, distributed via city councils. Vouchers could be pooled to pay for a shared connection with very high bandwidth. The scheme was first piloted in five cities to test the demand for vouchers amongst SMEs, identify any market distortion

and check the scheme's administrative costs, before being expanded to 50 cities. Results showed that recipients not only used the internet more, but also used it in new ways, such as remote access and cloud computing. The government estimated that over £5 of additional profit was generated for every £1 invested through this scheme.⁴⁹

Wireless Connection

Mobile technologies and services in Europe were estimated to have contributed around 3 per cent of Europe's GDP, worth €500 billion, in 2014 – driven not only by consumer smartphones, but also by increasing numbers of IoT devices including cars.⁵⁰ Many digital startups are now thinking 'mobile first'. As with ultra-fast broadband, the extent to which faster

mobile connections will drive growth is unclear. However, the expectation of many is that upgrading mobile networks from 4G to 5G, or increasing adoption of alternative technologies such as WiMAX, could lead to new applications. Lower latency, for instance, may enable new capabilities for self-driving cars or industrial robots.

Municipal Wireless Networks (Various Cities)

Many cities around the world – including Vienna, Tallinn, Helsinki, Dublin, Geneva and Taipei – have installed city-wide wireless networks, often using existing infrastructure such as streetlamps or cellphone towers to reduce costs. In some cases, the aim has been to promote economic regeneration or tourism, but such networks have often generated spillover benefits, such as enabling smart

infrastructure, promoting social inclusion and increasing resilience. These are often 'free' for citizens, paid either via general taxation or via advertising. From a policy perspective, concerns have been raised about distortion of the market for private internet service providers (there have, for instance, been several court cases in the US over whether city provision of Wi-Fi is anti-competitive or a local monopoly).⁵¹

However, from the perspective of digital entrepreneurs, this is usually seen as a significant benefit, enabling

much greater flexibility of location, as well as a modest form of subsidy.

Northern Michigan University WiMAX and LTE Network, Marquette, USA

Marquette is a small city with low population density, and thus a low priority for telecom firms. In order to provide off-campus connectivity – especially important as more than two-thirds of students live off-site – Northern Michigan University therefore decided to become the first US university to own and operate a 4G WiMAX network (later upgraded to LTE). This now spans around 40 square miles, covering the city of Marquette

as well as six neighbouring towns. The network is owned by the university but was constructed in partnership with the city authorities (who provided locations for base stations) and technology providers including Huawei, Intel, Lenovo, and Cisco. Students and staff are issued with compatible mobile devices, which are expected to be used as core teaching tools, with the cost of this device and the network then included in tuition fees.

5G Connectivity, Stockholm and Tallinn, Sweden and Estonia

In 2018, 5G connectivity will be rolled out by telecommunication company Ericsson and telecom operator Telia (formerly Teliasonera) in Stockholm and Tallinn; the two firms previously collaborated on 4G rollout. Both cities are some of the best connected cities in Europe and are already pioneering in digital businesses; in addition, Telia is part-

owned by the Swedish government and headquartered in Stockholm, hence the city is a natural location for first trials. To explore potential business opportunities, Ericsson launched a programme in Sweden called '5G for Sweden' where key research partners, universities and industries will work together to lead the 5G digital transformation.

Free Tram Zone, Melbourne, Australia

In 2015, the city of Melbourne introduced a Free Tram Wi-Fi Zone in its city centre. In this area, users are provided with free public transport as well as free Wi-Fi. This

relatively simple scheme was intended to allow citizens to move freely around the city without losing connectivity, so making their day more efficient.

IoT Testbeds

The Internet of Things (IoT) is a name given to the rapidly-growing world of web-connected devices that integrate physical objects with information networks. A convergence of multiple trends – including embedded systems, real-time analytics, machine learning, sensors and automation – IoT is widely seen as holding immense

promise. It is certainly an area of interest for many startups, although they are often hampered by difficulties in obtaining access to data or existing infrastructure. Some cities have therefore undertaken initiatives to help entrepreneurs test their technologies in 'live' environments.

City of Things, Antwerp, Belgium

The City of Things initiative in Antwerp connects 200,000 city dwellers with digital entrepreneurs through an extensive network of smart devices linked throughout the city. This represents a full scale lab which enables entrepreneurs and researchers to experiment at low cost with real-time big data, as well as new

products and services. Beyond giving a unique advantage to the Antwerpian startups to foresee the opportunities enabled by IoT, this experiment is an exclusive opportunity to trial how IoT technologies can be harnessed for the advantages of the city of Antwerp.

Bristol is Open, Bristol, UK

Bristol is Open is a venture supported by the local, national and European governments, as well as receiving private sector and research financing. Targeting the development of the infrastructure that will enable a connected city, the project aims to equip the city with sensors and 5G connection. Partners –

including telecom companies, startups, and researchers – are joining the project to use the anonymised data for research and business purposes. Furthermore, the project can help the city understand how big data can address its digital and data challenges.

Access to Data

Some policymakers believe that a digital strategy must entail major infrastructure projects, such as 5G development or deploying sensors across cities. However, in many cases, it is more productive first to focus on the handling of existing data. Data is a valuable competitive and economic asset and is essential for many

startups as well as for civic innovation. Cities in particular are dramatically-increasing amounts of data. Systematically collecting and opening up these datasets represents a great opportunity to enable the growth of a city, by encouraging startups to develop new services which address the city's challenges.⁵²

NYC DOT

New York, USA

In partnership with private partners, DOT organises the yearly BigApps competition that rewards \$25,000 to startups that can use their data sets to address civic challenges.

London Data Store

London, UK

Provides over 660 datasets across 16 themes (like transport, arts and culture, demographics and housing) from 50 different institutions.

Data Amsterdam NI

Amsterdam, Netherlands

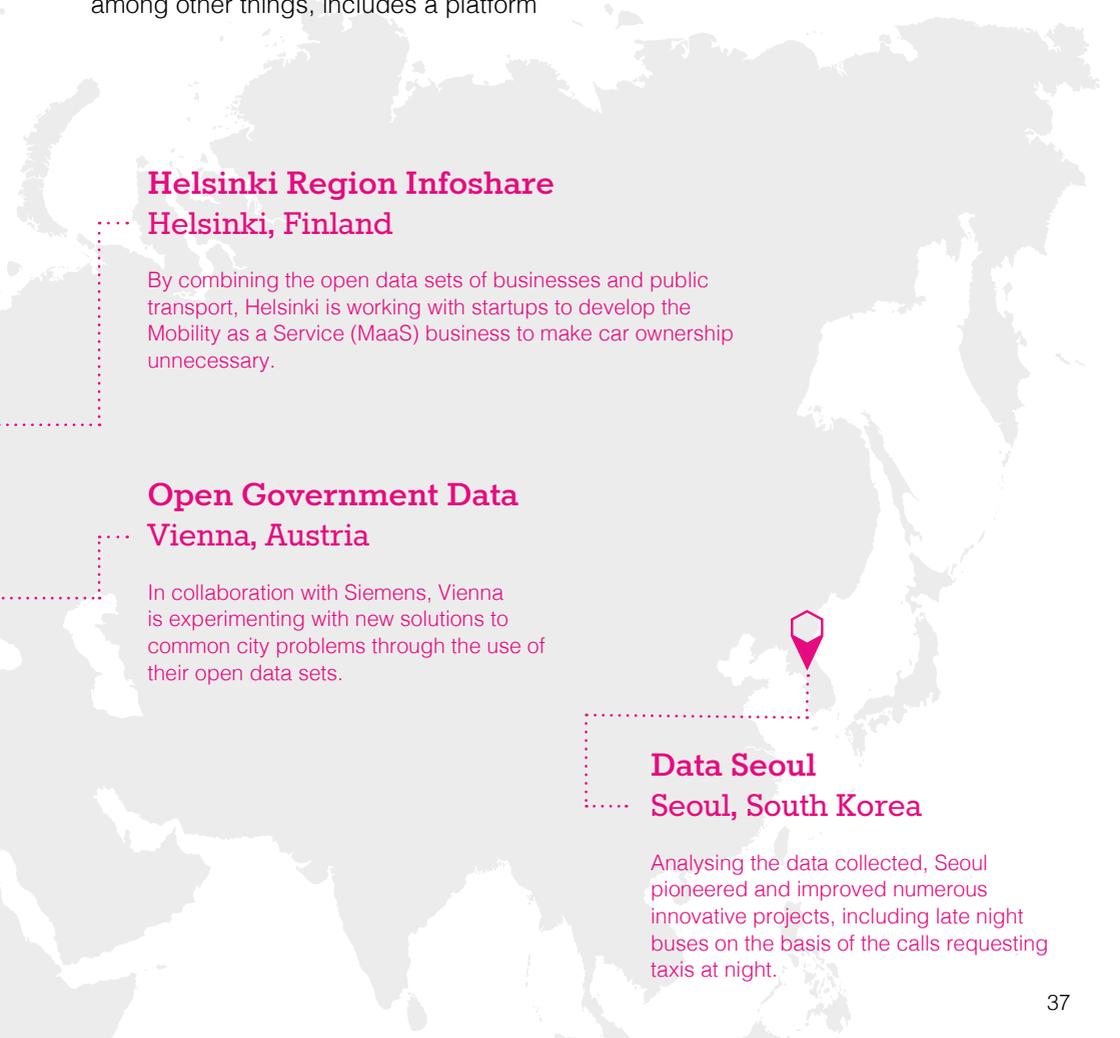
Amsterdam has developed an extensive portfolio of data intensive projects. The city's dashboard displays those initiatives in a comprehensive and accessible manner.

Open Data Platforms, Moscow, Amsterdam and London

Some cities like Moscow have started the process of opening up their data by providing a complete and comprehensive repository of the different datasets they have collected. However, the real potential for startups arises from providing access to live data with an open API (an application programming interface, which makes it easier for programmers to interrogate the data). Cities like Amsterdam, London or New York have made such services available. Amsterdam went the extra mile with the Amsterdam Smart City initiative which, among other things, includes a platform

to showcase the startups that have used their data sets. The London Data Store is another example of a comprehensive, and updated in real time, repository of more than 660 datasets with open APIs.

Many startups, such as Citymapper or Moovit, rose to prominence on the basis of this information and conquered global markets while providing city dwellers with valuable services. Others, like MaaS (Mobility as a Service), resulted from in-depth collaboration between the town hall and private mobility services.



Helsinki Region Infoshare

Helsinki, Finland

By combining the open data sets of businesses and public transport, Helsinki is working with startups to develop the Mobility as a Service (MaaS) business to make car ownership unnecessary.

Open Government Data

Vienna, Austria

In collaboration with Siemens, Vienna is experimenting with new solutions to common city problems through the use of their open data sets.

Data Seoul

Seoul, South Korea

Analysing the data collected, Seoul pioneered and improved numerous innovative projects, including late night buses on the basis of the calls requesting taxis at night.



4 Entrepreneurial Culture



Why does this matter?

Cultural attitudes towards entrepreneurship vary significantly with geography. There are substantial regional differences in perceptions of risk and reward, the importance of career security versus the desire to be self-employed, fear of failure, opinions over whether entrepreneurs generate wealth for society, whether entrepreneurial opportunities exist, and the social status of entrepreneurs.⁵³

In cities like San Francisco, London and Berlin, the image of the entrepreneur as ‘rock-star’ is now so established as to border on cliché. Yet in other cities, entrepreneurship is not viewed nearly as positively, with connotations of a second-class option for those unable to find a secure career.

There are also significant gender differences: in the UK, for example, men are significantly more likely than women to think that local startup opportunities exist, and to consider that they have the skills, knowledge and experience to start a business; whilst women are much more likely to be deterred from starting a business by fear of failure.⁵⁴

Public policies can help to normalise entrepreneurship, exposing people – particularly young people and women to this concept of shifting perceptions such that more are motivated to become entrepreneurs. Several programmes focus specifically on under-represented groups such as female founders.

Attitudes towards Failure

The brutal reality is that most startups will fail. But how failure affects entrepreneurs is complicated: some believe that each failure brings them closer to success; others are of the view that failure brings a social stigma which inhibits future attempts. In fact, the evidence is currently inconclusive about the existence of either a learning effect or a stigma.^{55, 56, 57, 58}

Nevertheless, it is indisputable that startup failure often entails strict bankruptcy regulations and punitive financial measures. Whilst policymakers and regulators are understandably wary of allowing businesses to evade debts too easily, making it easier to wind-up failing companies is important in freeing

entrepreneurs to try again. Fear of failure is also a significant inhibitor for many: worryingly, half of Europeans agree with the statement that “one should not start a business if there is a risk it might fail” (compared with around one in five of the US).⁵⁹ Women typically report a greater fear of failure than men.

Although local policymakers may have little control over insolvency procedures, publicly sharing stories of failure can help to normalise the process and foster a culture of acceptance towards those who have genuinely tried their best, so encouraging more to try.⁶⁰



Worryingly, half of Europeans feel that one should not start a business if there is a risk it might fail

F*ckup Nights, Mexico City (and Various Cities)

Born after a couple of beers one night in Mexico City in 2012, and now running in over 100 cities worldwide, 'F*ckup Nights' are events that feature three speakers publicly sharing their business failure stories. Each speaker is given up to ten minutes and ten slides to present how they 'f*cked up their business'. After each speaker's presentation, there is a question and answer session, as well as time for networking – naturally over beers.

Similar initiatives, explicitly intended to reduce the stigma associated with failure, include small-scale events like Startup Funerals and Closed Club, to larger conferences like Failcon (started in San Francisco in 2009) and Failing Forward (organised by the Belgian Startup Association in 2016 and sponsored by the European Commission's Startup Europe programme). The Government of Finland is also organising a similar event.

Enterprise Lithuania, Lithuania

Enterprise Lithuania is a public body promoting Lithuanian enterprise. Its activities include arranging events, mentoring, training and access to business networks for 'second chance' entrepreneurs – that is, entrepreneurs who have failed but want to try again. Some 'second chance' activities have even been included in Lithuania's national Entrepreneurship Action Plan

2014-2020 and are aimed directly at improving the public image of honest but unsuccessful entrepreneurs. In parallel, bankruptcy proceedings have been simplified by a new law which came into force in 2015. One provision of this regulation is to allow the sale of assets by electronic auction, making the bankruptcy procedure faster and more transparent.

Promoting Youth Entrepreneurship

Various initiatives exist to promote youth entrepreneurship, often led by universities or public-private partnerships. Some focus on teaching the fundamentals of starting a business and providing the appropriate tools; others may focus on promoting role models to inspire budding entrepreneurs, and highlighting entrepreneurship as a viable option alongside more traditional career paths.

From a policy perspective, several policymakers have focused on including entrepreneurship in the school or

university curriculum; others have focused more on promoting innovative ideas by means of competitions and hackathons (either within schools or between them). Educating career advisors about the importance of entrepreneurship as a career option, and ensuring that their institution does not have performance indicators which inadvertently bias towards traditional employment, also matters.

Citrus Saturday (Various Cities)

Citrus Saturday, a programme first developed by University College London, and now operating internationally, encourages young people to discover the principles of entrepreneurship for themselves in a very simple way: by running a lemonade stall. The programme

provides guidance for organisers (e.g. recipes, food hygiene, health and safety, child safeguarding) but places an emphasis on 'experiential learning', so that children discover for themselves the basic principles of running a business.

Option Startup, Paris, France

Option Startup is a two-day programme launched in 2015 by the city of Paris, which aims to inspire high school students to become entrepreneurs. More than 3,000 students are immersed in the startup world for two days, where they meet startup founders and managers

of innovative businesses in areas that include robotics, data analytics, e-education, video game design, IoT and connected device design. The aim is to provide students with real-world contact and inspire them to pursue an entrepreneurial career path themselves.

UStart Student Accelerator, Dublin, Ireland

UStart is an initiative from DCU Ryan Academy – itself a collaboration between Dublin City University and the family of Tony Ryan, co-founder of Ryanair and one of Ireland's most successful entrepreneurs. The UStart programme is an entirely free initiative (worth €10,000), which runs part-time during the summer. It is available to any

DCU student with a viable business or social impact idea. Participants have the opportunity to see their project grow from an idea to a Minimum Viable Product (MVP), test customer validation, adopt agile development techniques, receive mentorship from experts, as well as free office space.

Founders4school, (Various Cities), UK

Founders4school is a UK charity which connects successful entrepreneurs with schools, via a scalable, online platform. The aim is for entrepreneurs to share their experiences directly with students, providing not only inspiration but also insight into the skills needed in the future.

Thanks to the support of both private and public partners, including the Department for Business Innovation and Skills and the Department for Education, the service is offered free to schools, and has involved 2,450 students since its launch in 2011.

City Branding

Brands can be useful in creating a feeling of identity and belonging, and serve as simple representations of complex ideas. In the same way that a country's flag or a company's logo can give a

sense of coherence and be a tool to connect people with similar values, so city branding has the potential to bring together entrepreneurs within a certain area, and raise their profile externally.

Made in NY, New York, USA

To champion local entrepreneurship and innovation – and raise awareness of the local manufacturing sector in particular – the Pratt Center for community development created the 'Made in NYC' brand, with support from NYC City Council. Any digital startup with at least

75 per cent of their development activities and at least one full-time employee based in New York City (plus a minimum of 10,000 monthly visitors) is eligible to use the brand. For a startup, this can enhance credibility and access to external markets.

Dublin Makes Me, Dublin, Ireland

A similar initiative from the office of the Dublin Commissioner for Startups is 'Dublin Makes Me'. Through a bold website, brochure and events, the initiative

aims both to raise the profile of home-grown successes, and also to provide useful information for local entrepreneurs.

La French Tech

The state-supported La French Tech initiative aims to create a unifying brand for French entrepreneurs around the world. With a relatively modest budget, the brand is not tightly held by the government, but

is made available to the entrepreneurs themselves under clearly framed but easily fulfilled conditions. To further its goals and popularise the brand, La French Tech's strategy involves three activities:

First, giving greater visibility to the existing startup ecosystem. Cities that have strong entrepreneurial activities are labelled as 'Métropole French Tech' with each given their own dedicated website. The activities of those hubs are also organised through 'thematic networks' which further increases the reach and relevance.

Second, directly supporting startups. The *French Tech Acceleration Fund* invests public funds to support private startup accelerators. The *Pass French Tech* uses objective measures to identify startups in a 'hyper-growth' stage and provides them with simplified and quick access to necessary services that will help them with their expansion; in the past two years, more than 100 startups have benefited from this programme.

Third, connecting the French startup ecosystem internationally. Twelve cities, from San Francisco to Hong Kong, host *French Tech Hubs*, where subsidiary teams help French startups to establish a foothold in foreign markets. The *French Tech Ticket* programme also attracts highly qualified international entrepreneurs to France by offering a fast-track visa process, office space in an incubator, mentoring, a stipend and administrative support. In 2016, more than 1,400 entrepreneurs applied, of which 50 were selected.

Many entrepreneurs credit La French Tech with promoting a clear French startup identity and raising the profile of entrepreneurship in French media.



5 Knowledge Spillovers



“It’s no coincidence that startups start around universities, because that’s where smart people meet.”

- Paul Graham, founder of Y Combinator

Why does this matter?

Startup ecosystems often evolve around prominent ‘anchor institutions’: large, resource-laden organisations such as universities or major technology firms, which are locally active and relatively immobile.⁶¹

Such institutions may spawn spinouts directly: many leading digital firms including Google, Facebook, Sun Microsystems and Deepmind owe much to university roots; others, like AMD, Nuage Networks and Agilent Technologies spun-out from major technology firms.

Anchor organisations also serve other important functions. They can act as a reservoir of technical skills which can benefit startups through employment of skilled individuals, training courses, collaborative research, contract research, consultancy and equipment hire. They can act as testing, measurement and certification facilities, providing validation, advice about metrology, equipment calibration, standards and quality control. They may provide assistance with prototypes, especially where startups have

needs beyond the technical capabilities of ‘makerspaces’. They can also act as a local market for goods and services.

It should also be noted that the presence of a large, acquisitive company helps boost a city’s ecosystem in other ways: analysis also shows that cities which have more active acquirers also have more startup exits.⁶²

Since emerging as a concept a couple of decades ago, anchor institutions have come to play a core strategic role in urban regeneration and local economic growth.⁶³ As such, they may already have a formal role within the planning and policymaking process with a city, with various policies designed to facilitate knowledge spillovers through formal knowledge transfer (like collaborative research and direct movement of people). Many universities have consciously adopted these community interactions as part of their so-called ‘third stream’ activities; these are often granted tax exemption in recognition of the broader social benefit.

Collaborative Research and Consultancy

Many universities now have well-structured mechanisms for collaborative research and consultancy, which may benefit startups that need business advice or technical input. In this instance,

the aim of policymakers and university officials should be to smooth and simplify the process of collaboration wherever possible, reducing the search costs and transaction costs for entrepreneurs.

Lambert Toolkit, UK

Developed following Richard Lambert's 2003 review of University-Business collaboration, the so-called 'Lambert Toolkit' is a set of flexible model agreements intended to simplify the bureaucracy that sometimes stifles collaborative partnerships.^{64, 65} The kit includes a decision tree to help

users determine the most appropriate agreement subtype, together with guidance notes to help non-lawyers understand the legal terms. These agreements have proved popular with many businesses, to the extent that some now promote their use with academic partners across the globe.⁶⁶

Innovation Vouchers, Ireland

The Innovation Vouchers scheme is a low-resource initiative that provides SMEs with vouchers worth €5,000 that allow them to procure the services of academic researchers from one of 38 registered research institutions. The ultimate goal is

twofold: on the one hand, it helps SMEs to develop R&D capacities and get started on the knowledge-based market, and on the other, it supports the alignment between public research institutions and local business development.

Growing Enterprises through Technology Upgrade (GET-Up), Singapore

The Growing Enterprises through Technology Upgrade (GET-Up) programme is an integrative approach that aims at assisting local technology-intensive enterprises by providing them with the technical expertise and assistance they need. For instance, the Technology for Enterprise Capability

Upgrading (T-UP) scheme – one of GET-Up's options – connects businesses with competent researchers, scientists, and engineers. Eligible companies are provided with funding to cover up to 70 per cent of the salaries of research employees for up to two years to help them kick-start their R&D capacities.

As a result of the GET-Up schemes, 60 per cent of the businesses have been successful at securing patents and 79

per cent of the companies launched new products. The US Manufacturing Extension Partnership network is a similar example.

Facilities Hire

In addition to human resources, startups may benefit from access to equipment or specialist facilities which are out of reach for small firms with limited resources – such as anechoic chambers, wet labs, wave tanks, supercomputers, microscopes, and so on. Many startups

are unaware that such facilities may be available to them, so simple first steps for organisations are to catalogue and advertise available facilities, arrange a single point of contact, and simplify any associated contracts.

University of Hertfordshire, Hatfield, UK

Although not a top-tier institution in terms of academic performance, the University of Hertfordshire has an impressive track record in supporting startups and small businesses. The university offers an extensive range of facilities for hire including: a specialised bioscience and biotechnology research centre; a digital image and multimedia unit; a film studio;

office space; a full-scale law court; a medical simulation centre, complete with emergency ward simulations; a music studio; pharmaceutical laboratories; and physiotherapy laboratories. In addition, it has a not-for-profit SME advisory service, Exemplas, which has helped over 500,000 startups and SMEs in the past 25 years.

Cross-pollination

Knowledge transfer occurs not only through formal means, but also by informal mechanisms such as local meetups and social connections. Research has shown that such informal mechanisms are highly significant but under-appreciated: one study estimated that around 40 per cent of the ideas within typical R&D lab came from individual contact with the outside

world; other studies have concluded that informal contacts are the most prevalent knowledge transfer mechanism.^{67, 68} Whilst some transfer will happen naturally, it may be encouraged by through events, network curation, and other policies which promote the serendipitous 'collision' of individuals, such as co-location and provision of shared spaces.

Contamination Labs, Reggio Calabria, Catania, Cosenza and Naples, Italy

In 2013, the Italian Ministry of Education, Universities & Research assigned €1 million to create 'Contamination Labs' at the universities of Campania, Puglia, Calabria, and Sicilia. These labs are intended to connect students from various courses with professors from different departments, as well as linking

with external experts from corporates, startups, and investors. The key objective of these Labs is to foster 'contamination' of thinking and collaboration between people with different backgrounds and experience, so that ideas evolve in new and creative ways.

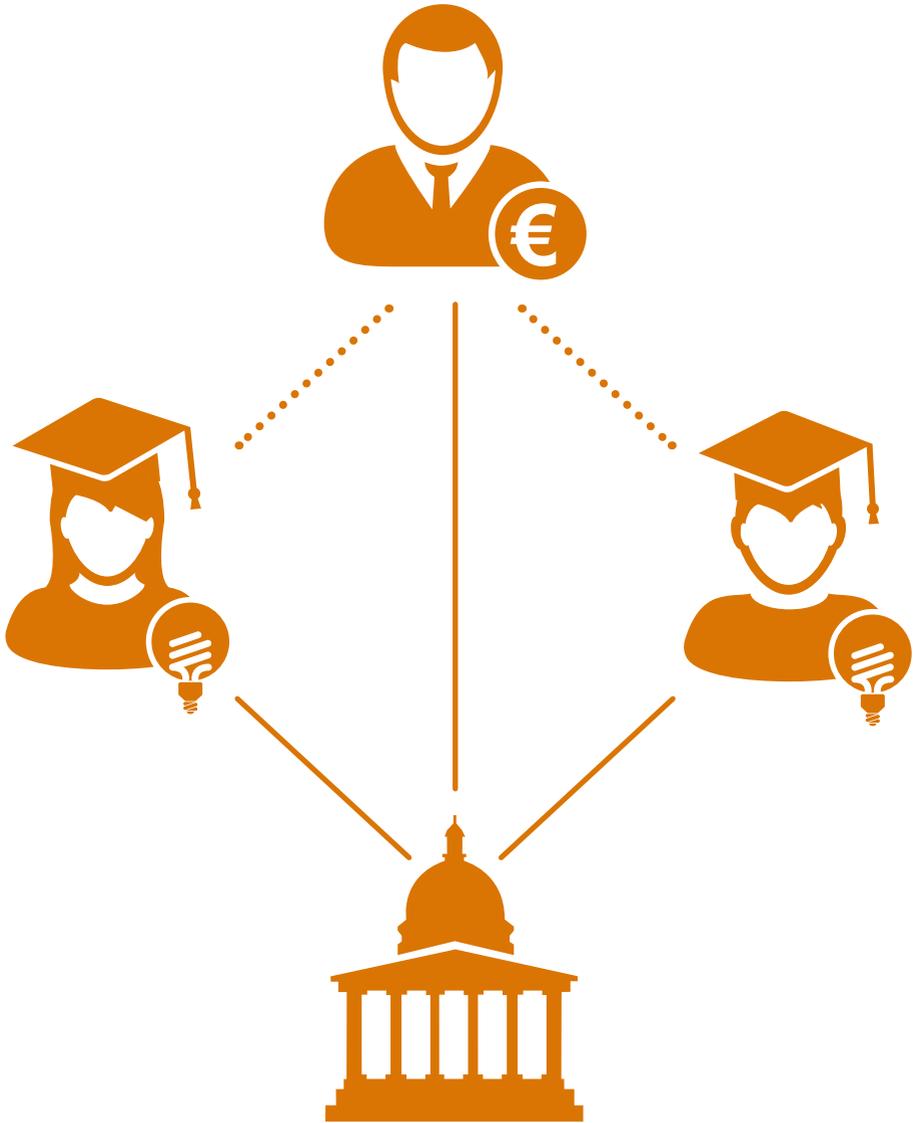
Academic Entrepreneurship

Academic and student entrepreneurship is a significant subject which is difficult to summarise. Fortunately, there are several good literature reviews of the area, which demonstrate that individual institutions have a number of levers at their disposal.^{69, 70, 71, 72} These levers include policies around institutional IP ownership, founding equity and share options, template agreements, academic incentives (including free time, promotion criteria and prestige), the use of departmental innovation champions, entrepreneurship training, recruitment criteria, and alumni networks – all of which can influence rates of entrepreneurship.

In addition, organisations such as ATTP, AUTM, Praxis-Unico and ASTP-Proton exist to promote good practice and inform policy.

Discussion of academic and student entrepreneurship is often intertwined with debate around Technology Transfer Offices (TTOs) – the dedicated units which typically support the spinout process, as well as licensing intellectual property.^{73, 74} From the particular perspective of digital entrepreneurship, one thing to note is that many TTOs historically focused on intellectual property and 'hard' technology, and hence may be less well equipped to deal with startups based on digital technology or new business models.

Moreover, just as universities differ in their approach to entrepreneurship, so TTOs vary in their approach, attitude and scope. Some are purely focused on their parent university, whilst others may be incentivised to assist local startups that are not university spinouts.



Case Study

Office of Business Development, UC Merced, California, USA

Universities often play an important role in community engagement, economic growth and job creation. The Office of Business Development at UC Merced

is an example of a unit which has consciously adopted this mission, in place of alternative aims like revenue generation.



The city of Merced in California, USA is a region that has been challenged by high unemployment – principally in the agricultural sector – coupled with low education levels. For this reason, when the University of Merced was established in 2005, a chief concern was in exploring ways for the institution to diversify the region's economy and retain more skilled workers. Instead of an office of technology transfer, it was then decided to establish an Office of Business Development that would play a central role in socially and economically anchoring the university in the region, as well as to connect public and private actors.

For this purpose, the Office of Business Development took an approach less focused on the management of Intellectual Property Rights (IPR). Instead,

it decided to play a brokering role by actively engaging in industry outreach (via the UC Merced Business Alliances programme) and maintaining close connections with the city government via the UC Merced Community and Economic Development Partners. Through these schemes, the university is currently playing a growing role in the social and economic development of the region.

Within the university, the Office of Business Development has been mainly concerned with entrepreneurial training and helping local startups grow and partner with public and private companies, rather than focusing on technology licensing. However, this has not prevented entrepreneurship: although UC Merced is still a relatively young university, it has already given birth to 8 startups.⁷⁵

6 Lifestyle and Creativity



Why does this matter?

Entrepreneurship is, in part, a lifestyle choice. That is not to say that all startups are 'lifestyle businesses' (a term used, sometimes derogatorily, for businesses with no real growth ambition). Rather, it is to acknowledge that most entrepreneurs make a deliberate decision to pursue that career path at the expense of more secure options, based on personal factors including self-determination, mobility, curiosity and quality of life. Thus whilst lifestyle may not be a conscious determinant, many entrepreneurs form their startups where they 'happen to be living' at the time – a decision which usually includes personal factors.

Lifestyle factors can also drive entrepreneurs away from a city. Cultural sterility causes people to leave out of boredom. High living costs may cause people to

seek a better quality of life elsewhere.

The challenge for policymakers is finding specific policies to address these general issues, given that a high standard of living is something to which we all aspire and which is already at the root of much public policy.

In addition, there is a further argument that creativity matters to the process of new venture creation, not only for obviously 'creative' startups concerned with media, advertising, gaming, product design and so on, but also in terms of prompting and challenging new ideas more generally.

Some have even gone so far as to declare that "The new economy is creativity plus electronics".⁷⁶ Such creativity is stimulated by cities with a more lively cultural sector.



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Cost of Living

Expensive cities obviously make self-employment and early-stage entrepreneurship more difficult. While the costs of groceries and rent are largely determined by markets, local-level policymakers may have some discretion in imposing floors and ceilings on certain items, as well as control over the pricing of services like public transport.

Housing, in particular, is a topic of huge interest. Many cities across the world find that sharply increasing rents are a significant urban issue, especially for younger citizens, and are experimenting with policies to curb these rises. Strategies include encouraging new buildings; allocating a proportion of new builds

specifically for low and middle-income households; encouraging employers to contribute towards transport costs (thus allowing staff to commute from cheaper areas); rental deposit schemes, in which companies can offer employees interest-free loans to pay their deposits; and shared ownership schemes, where the government owns part of the equity. More contentious are rent controls, which have been applied in Berlin to prevent landlords from increasing rents by more than 10 per cent above the local market average, and prohibitions on commercialised home-sharing, which have again been applied in Berlin to limit the use of Airbnb.

Startup-friendly Unemployment Benefits, France

One of the deterrents to entrepreneurs is the fear of giving up an existing job for a more uncertain path. Unemployment benefits may provide a safety net, but in many cases, these are withdrawn as soon as an individual starts working. In France, the benefit system was changed to grant entrepreneurs access to unemployment benefits for the first three years of their

business, as well as in the event of startup failure. One study suggests that this reform has led to 12,000 additional firms being created every year.⁷⁷ The broader lesson for policymakers is that whilst entrepreneurship is inevitably risky, reducing the downside does encourage prospective entrepreneurs to start up.

Cultural Quarters and Attractions

Many cities have designated 'cultural quarters' or spatially-defined creative spaces. There is a persuasive argument that Berlin's independent music scene has not only contributed to the number of music-related startups from that city, but also been a factor which has attracted young entrepreneurs in all sectors into the city. Whilst this is difficult to prove, there is evidence that "creative workers in cities with high levels of cultural clustering

enjoy a wage premium, which suggests that not-for-profit arts and cultural sectors may be generating knowledge spillovers into the commercial creative economy".⁷⁸ Certainly, providing cheap or easy access to a city's cultural attractions like museums and music festivals is bound to be a popular policy with young entrepreneurs looking for a fun and inexpensive way to spend their leisure time.

Living Innovation Zones, San Francisco, USA

Living Innovation Zones (LIZ) are temporary installations, situated in San Francisco's cultural, civic and economic core. They have multiple purposes: they are intended to be public platforms for experimentation and prototyping, which simultaneously showcase the city's innovation and creativity, whilst also entertaining the public. Installations encourage passers-by to interact with them, as well as with each other. The project aims to "steer San Francisco's tech and creative communities toward advancing sustainable community

development, efficient government and a better quality of life for San Franciscans". The programme is led by the Mayor's Office of Civic Innovation, the Planning Department, San Francisco Public Works and The San Francisco Arts Commission. The city is responsible for initial site selection and outreach, design review, and the permit process. Any organisation – from cultural institutions, museums, and individual artists, to research organisations and businesses – can help inform the design of the zones.

Creative Experimentation

Whether it involves a new product, process, business model or service, innovation always requires an element of creative experimentation. Whilst creativity exists innately in everyone to a degree, certain environments or habitats may foster this more than others.⁷⁹ We therefore

believe it is important that policymakers support a broad array of initiatives that connect art, design and technology. 'fablabs', 'makerspaces' and design festivals all present opportunities for entrepreneurs to be inspired, as well as to express their creativity in different forms.

Makerversity, London, UK and Amsterdam, Netherlands

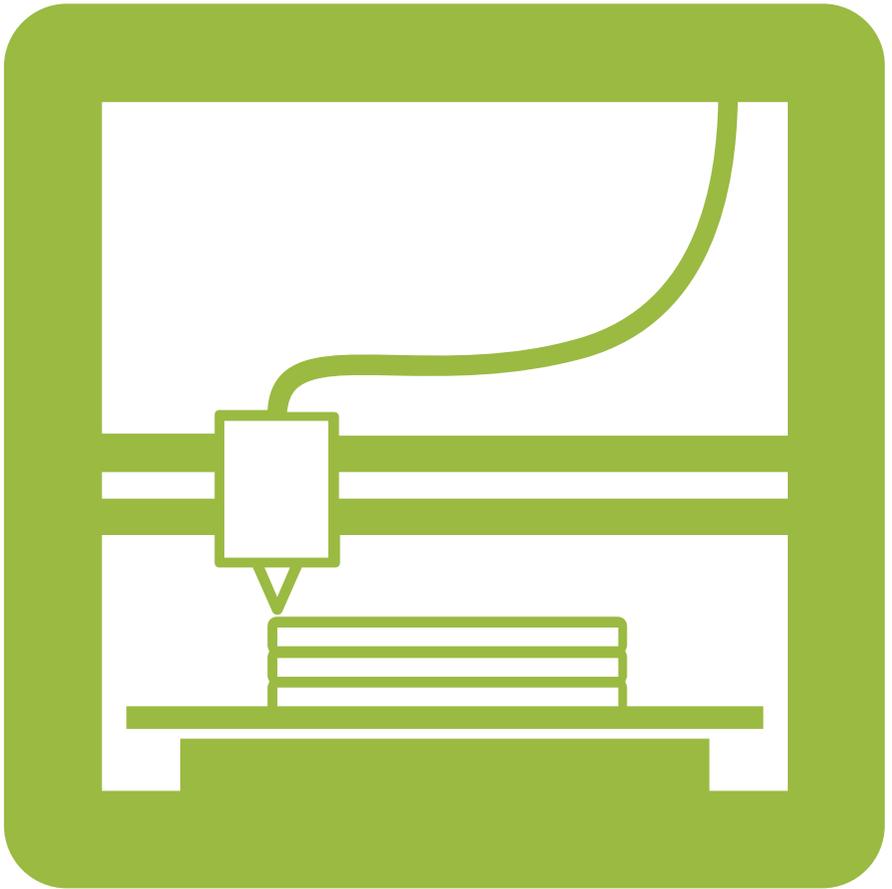
Makerversity is a space where creative people, entrepreneurs, designers and engineers can meet to create things together. With two hubs currently in operation – one in London and the other in Amsterdam – Makerversity offers the tools, technology and infrastructure to craft new ideas like 3D prototypes, wearable technologies and 'science-art' displays. Besides providing a series of facilities

(including 3D printers, vinyl and laser cutters, and CNC machines) the additional value of this space is in the people it hosts. The spaces create communities of inventors, designers, manufacturers, engineers and entrepreneurs, allowing them to exchange ideas and collaborate. Connecting both physical and digital creators generates an environment where more ideas are able to flourish.

Transmediale, Berlin, Germany

Transmediale is an annual, week-long festival which consciously connects digital culture, technology and 'new media art' (which includes art computer graphics, video games, 3D printing and cyborg art). The festival, which is supported by the German government and celebrates its 30th anniversary in 2017, offers a critical view of the impact of technology

on humans. Via exhibitions, conferences, films, live performances and publications, it provides an experience that combines artistic work with speculative talks and reflections. Initiatives of this kind are useful as they offer an occasion for startups, institutions and individuals to mingle in a creative space while being exposed to discussions on future trends.



7 Market

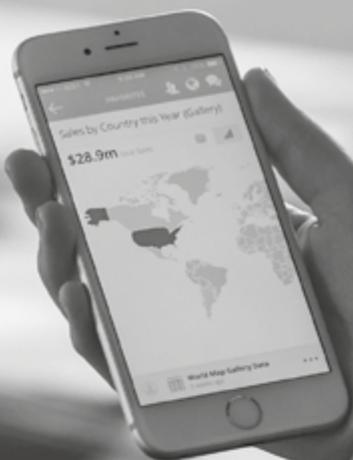
Why does this matter?

Many digital startups have a global outlook from the outset, aiming to sell their software or services across the world. For such firms, the local market may be irrelevant. However, it would be a mistake to imagine that all digital startups are like this.

Many firms still rely upon geographically-bounded markets, if only to encourage initial network effects. Facebook, for instance, launched with specific, highly localised (university) markets. Many firms based on the 'sharing economy' – like Uber, Lyft, BlaBlaCar and JustPark – can only work if there are sufficient local users to allow peer-to-peer interaction.

Others, like payment systems, may a concentration of local users in order to persuade third party retailers to adopt their system; whilst some physical products may need adjustment for local standards and regulations.

For many digital startups, then, the local market matters a great deal. Whilst they may have global ambitions, it is often necessary to expand strategically, city-by-city, or country-by-country. A strong local market can thus provide a significant stimulus to startups, and may be spurred by public procurement as well as policies aimed at market-making and reducing market risk.



Public Procurement Programmes

According to one estimate, within the EU around 19 per cent of GDP is spent on public procurement, making it one of the most powerful tools that governments have at their disposal to stimulate startups and SMEs.⁶⁰ Undoubtedly, procurement contracts can make a huge difference to small firms.

Unfortunately, procuring from public entities is often a long, cumbersome and painful process, especially for small businesses with more limited expertise and resources. As a consequence, these processes tend to favour incumbents, lower the level of competition and increase market inefficiencies. On their side, public bodies may also find procuring from startups to be more challenging than from established businesses, potentially involving higher risk and lower levels of certification and awareness.

However, startups can often bring innovative solutions to the table, widely improving value for citizens

and employees. Making procurement processes more accessible can therefore benefit both sides.

This can be accomplished by a variety of means, including: creating procurer networks, 'meet the market' events and easier points of contact, to help small suppliers find buyers; educating procurement officers about the benefits of smaller suppliers and the need to avoid over-specifying contracts (thus allowing for innovative solutions); increasing transparency of the organisation's needs (thus allowing potential suppliers to be aware of supply possibilities before formal calls); encouraging subdivision of big contracts into smaller pieces; simplifying the qualification process; resisting demands for ISO certification for smaller suppliers; educating potential suppliers about the process; and allocating a portion of overall procurement budget to be spent with smaller companies.

TenderNed and New Procurement Act, Netherlands

In the Netherlands, over €60 billion of goods and services are procured by the government annually, from approximately 70,000 suppliers. The need for a more efficient tendering process led to the introduction of TenderNed, an online platform launched in 2012 to manage the process online and encourage the use of e-government. This has decreased the time and cost of bidding, meaning that government benefits from more innovative

suppliers and increased competition, whilst startups and scale-ups can now find opportunities for government contracts on one single website. Around the same time, a New Procurement Act (Nieuwe Aanbestedingswet) required that, wherever possible, large tenders be split up into several smaller contracts, thereby enabling collective bidding by several SMEs working together.

Preferential SME Procurement, São Paulo, Brazil

The São Paulo State Government is working to remove barriers to SME participation in public procurement. In 2012, the State procurement processes have been reformed to make it easier for SMEs to win public sector contracts.

For example, acknowledging that it is hard for SMEs to compete on price alone, when competing with non-SMEs tenderer, SMEs are the preferred choice as long as their price is no more than 10 per cent higher than non-SME bidders.

Buy Blue, University of Toronto, Canada

Buy Blue is a University of Toronto initiative to encourage university departments to purchase from the university's own startups.⁸¹ The programme is managed by the Banting & Best Centre for Innovation & Entrepreneurship, which subsidises purchases of equipment (up to \$5,000 per sale, in line with State

procurement guidelines) to make the startups' offers competitive. In this way, startups gain an early adopter, which helps with subsequent sales, whilst the university can support its home-grown startups and potentially gain access to the latest equipment and services.

WienWin, Vienna, Austria

Launched in 2014, WienWin is scheme created by the city of Vienna and the Vienna Business Agency, to connect innovative businesses with public procurers. Projects are screened by an expert jury before being listed on an online platform. Procurement events are also organised to help connect prospective

buyers and suppliers. To date, the project has run over 130 procurement events and led to more than 50 trials or purchases, including a new robot for dangerous situations which was purchased by the Viennese Firefighters, and a monitoring system for bridges which has been installed in new subway bridge in Vienna.

Pre-procurement Programmes

Many cities are also experimenting with programmes aimed at startups which are not yet ready for market, but which show potential. These programmes often

have a competitive element, with the most promising startups then working with city authorities to co-develop an innovative solution.

Startups-in-Residence, San Francisco, USA

Launched in 2013, the San Francisco startup-in-residence programme connects talented startups with City departments, in order to explore and prototype innovative solutions to the civic challenges that they

face. The programme lasts for 16 weeks, with each cohort consisting of six startups, selected through a competitive process. The programme gives startups access to government needs, opportunities

and staff, giving them the chance to develop products and services which cater to the \$140 plus billion public sector market. For city departments, it brings the potential for new products

and services which lower costs, increase revenue, and/or enhance productivity. The programme concludes with a Demo Day and Roadshow at which findings and developments are shared with the public.

BCN Open Challenge, Barcelona, Spain

In 2014, the city of Barcelona and Citymart launched an Open Challenge call for international entrepreneurs to present solutions to six critical issues the city was facing: reducing bicycle thefts; empowering support systems to reduce social isolation; monitoring pedestrian flows in the city; digitising museum archives; automatically detecting and alerting authorities to damaged road

surfaces; and boosting local retail through technology. The winners were offered procurement contracts with the city, and each received a business-support package including free space to establish their offices in Barcelona, support with financial and human capital development, and coordination with relevant local partners. The city has dedicated a €1 million innovation fund for this initiative.

DataCity, Paris, France

DataCity is an open innovation programme, created by a partnership between Paris city hall and NUMA, an organisation which operates multiple accelerators. Its objective is to solve urban problems in the city by using data-intensive startups. The city authorities and NUMA identify the main challenges faced by the city (such as increasing citizens' awareness of air quality) and then scout for innovative startups who may have

solutions. Various industry partners, such as Vinci Energies, Setec, Suez, Nexity and Cisco, are also involved in the process, from definition of the challenge, through acceleration to testing. The programme is highly selective: only five startup ideas were admitted in 2016. However, selected startups receive a grant of €6,000 to support their experiment, plus access to data and live test sites.

Bigapps NYC, New York, USA

Since 2009, the City of New York organises the Bigapps NYC challenge, a public-private consortium which aims at addressing the city's many challenges such as affordable housing or waste management. To this end, startups are

incentivised to use public and private data to come up with innovative solutions, while a consortium of relevant stakeholders – from city official to major corporation such as Cisco or Facebook – provides resources, guidance, and experience.

Corporate Procurement

Corporate customers can be transformative for startups. As well as their direct custom, large companies bring validation, industry connections and market insight. However, selling into large companies is often little easier than selling into government – as with the public sector, corporate procurement processes can be slow, cumbersome and bureaucratic. This could be improved by promoting the use of simplified procurement contracts and incentivising prompt payment by suppliers.

From their side, many corporates report that startups are ill-prepared to become suppliers.⁸² Local government can therefore assist by educating potential suppliers about typical procurement processes. Search costs can be reduced by encouraging brokering or matching

events between potential partners and improving visibility of smaller firms so that larger players can more readily identify them.

In addition, many corporates like to engage with startups through alternative mechanisms before entering into a procurement relationship. For instance, a startup might begin a relationship with a large firm via a corporate accelerator or corporate hackathon, long before it reaches a procurement agreement. This can be aided by policies which raise awareness of the benefits and mechanisms of collaboration, promote collaboration as a life skill for young people, and encourage collaboration between suppliers (e.g. as a qualifying criterion for public contracts or grants).

Ready to Supply the City, London, UK

Ready to Supply the City is a programme funded by the City of London Corporation in 2012, which aims to assist local micro, small and medium companies in becoming 'fit to supply' to the City's businesses and their supply chains. The programme has worked with more than 100 enterprises, each of which receiving at least 12 hours of support including: assisting micro and small businesses to gain accreditation, training businesses to produce compliant bids

and more competitive bids, and helping businesses to improve their management structure. The programme also involved events such as 'Question and Answer sessions' which brought experienced City buyers to roundtables to discuss the opportunities and challenges in accessing the City supply. These events aimed to help businesses better understand what City firms were looking for from potential suppliers, and how any challenges raised could be overcome.

Smart London Innovation Network, London, UK

In 2013, the Mayor of London launched the Smart London Innovation Networks, aimed at connecting entrepreneurs innovating with 'smart city' technologies with buyers across London's future growth areas. One of these networks, the Smart London Infrastructure Network, is specifically focused on infrastructure services such as water, energy, telecommunications and waste management. In partnership with the Building Research Establishment (BRE), the network runs challenges and competitions to scout for digital

technologies; candidates then have the opportunity to pitch their innovative solutions to the private-sector organisations providing infrastructure across the capital. The benefit of this programme is two-fold: first, the winners get direct exposure to potential customers, increasing their chances of doing business with them. Second, infrastructure network members are better able to understand demand-side needs and possible solutions to them.

Overseas Expansion

To make overseas expansion less daunting and help startups find their feet in a new country, several governments provide overseas 'springboards' – bases from which they can connect with the local ecosystem and explore the market, often in the company of compatriots facing the

same challenges. Although these are usually funded by national bodies, we have included them here because they are interesting examples that could potentially be replicated without national support, via bilateral agreements between cities.

Landing Pads (Various Cities)

'Landing Pads' is an \$11 million programme, funded by the Australian government, comprising dedicated working spaces in global innovation hubs such as Berlin, San Francisco, Tel Aviv, and Shanghai. The scheme offers

market-ready startups a 90-day residency in a reputable coworking space, along with coaching, introductions to mentors, investors and customers, training opportunities, tailored networking events and state-of-the-art workspace facilities.

CTI Market Entry Camps (Various Cities)

'Market entry camps' are a similar initiative, established by the Swiss Commission for Technology & Innovation. Camps have been set up in San Francisco, Boston, New York, Bangalore and Shanghai, to help Swiss startups to expand internationally. The support offered depends on the stage of the

company, and potentially includes not only workspace but also legal and business advice, access to expert coaching and mentoring, introductions to potential customers, investors and partners through tailored events or meetings, plus a stipend to travel.



8 Mentoring and Managerial Assistance

Why does this matter?

Entrepreneurship invariably means taking the path less travelled. However, it does not necessarily mean travelling alone: many entrepreneurs actively seek mentors who can provide moral support, advice, ideas or connections. Evidence shows that business advice can indeed help improve firm performance, particularly firm productivity and output.⁸³

Mentoring therefore features in a number of entrepreneurship-support schemes. Whilst the impact varies with mentoring type and structure, many studies – and many successful entrepreneurs – agree that good mentoring can make a huge difference.^{84, 85} Nesta's own analysis of mentoring in the creative sector found that, on average, mentees rate the

usefulness of advice given by mentors above advice from non-executive directors and lawyers.⁸⁶

Other, less formal advice is often available through tech meetups. These serve as alternative fora for gathering advice, expanding networks and testing ideas. They have become an important feature of the digital innovation landscape, bringing together coders, designers, hackers and entrepreneurs (among others). They can be especially important for keeping technology skills fresh in fields that move too fast for universities and training providers, and facilitate collaboration and job mobility, increasing the connectivity and efficiency of local innovation ecosystems.



Accelerators

Accelerators have exploded across the startup scene in the past decade. Models and definitions vary, but most share the common features of delivering a time-limited, competitive, cohort-based training programme, often geared towards investment readiness.^{87, 88} Although there may be substantial differences in terms of sector, mission and funding, mentoring is almost always a critical component of the programme.

Many accelerators are privately-funded, aimed either at generating investment opportunities or, as with some corporate-sponsored accelerators, encouraging new technical solutions. However, numerous publicly-funded accelerator programmes can also be found – often with an emphasis on urban regeneration rather than financial return. In addition, EU-funded initiatives such as the Accelerator Assembly exist to help accelerators share good practice (such as focusing on quality of applicants; promoting peer-

learning; building entrepreneurial networks and finding the best-quality mentors possible).⁸⁹

Public policy here should focus first on understanding the existing distribution of privately-funded accelerators, so as to avoid competition using public funds. Co-investment of public funds may help stimulate private activity, although in such instances, alignment of the funders' success criteria is important. These may diverge if, for instance, a VC funder wants accelerated firms to move abroad in search of funding or a higher valuation, whilst a public funder wants them to remain to aid the local economy.

Various national schemes have been created to develop accelerators (e.g. the South African Department of Trade and Industry's Incubation Support Programme, or Enterprise Ireland's Accelerator Development Scheme). However, individual cities have also taken the initiative to fund such schemes:

Mobile Acceleration Programme, Barcelona, Spain

In order to support startups in Barcelona, as well as attracting new ones to the city, the city advertised an open call in 2016 for outstanding accelerators to set up a programme there. The French Accelerator NUMA won the tender and created a programme in partnership with mVenturesBcn (part of the Mobile World Capital Barcelona Foundation, which is founded by the Government

of Spain, the Regional Government of Catalonia and the City Hall of Barcelona, along with the GSMA). Each year, the accelerator aims to accelerate ten startups, offering a four month programme including mentorship and a €30,000 convertible note in exchange for 5 per cent equity. The city of Barcelona has invested €3 million in the programme.

LaunchKC, Kansas City, USA

In order to attract tech entrepreneurs to Kansas City, Missouri, in 2012 the city launched a business model competition for tech startup firms, called LaunchKC. Participants compete for ten grants of \$50,000 as well as mentorship, work space and other incentives. This initiative is funded by various partners including the city Council, the Economic

Development Corporation of Kansas City, local businesses and the Kauffman Foundation. LaunchKC focuses on sectors where Kansas City already has expertise, including Big Data, Cloud Services, Data Analytics, Financial Tech and Mobile, with the aim of strengthening the growing Innovation District within the city.

AppCampus, Espoo, Finland

AppCampus was a three-year project, running from 2012 to 2015, which aimed both to develop the Windows mobile app market, by accelerating startups developing mobile applications, and the ecosystem around Espoo. The programme was directed by Aalto University Foundation with Microsoft and Nokia each investing around €9 million. Selected applicants were offered mentoring and grants of between €20,000 and €70,000

in exchange for exclusivity of the apps on the Microsoft platform. The accelerator produced more than 300 apps during its three years of existence, which were apparently downloaded nearly seven times more frequently than an average app, as well as generating higher revenue and higher user ratings. It was also viewed by many experts as having had a beneficial effect on the local ecosystem.⁹⁰

Mentoring Networks

Aside from accelerator programmes, many mentoring networks exist to connect mentors and mentees; several also provide training for the mentors themselves. Such networks are typically national, although some do exist on a city-level, occasionally run by local chambers of commerce. Some networks may be focused on peer mentoring, which is more akin to a 'teenager-child' model than traditional 'parent-child' models.

Public policy here typically focuses on increasing the supply of mentors, by recruiting and mobilising volunteer

business mentors; increasing demand by advertising mentoring benefits; and co-connecting the two, often via online portals.

Promoting good practice is also helpful: there are suggestions that bad mentoring can be harmful. In particular, mentors should be encouraged to know their limit and when to refer issues to others.⁹¹ Setting clear expectations at the start of the programme, for both mentors and mentees, is also important; several organisations recommend a 'mentoring contract' for that reason.

Girls in Tech Mentoring Programme, Helsinki, Finland

The Helsinki chapter of the global 'Girls in Tech' network launched a six month mentoring programme – privately funded by the online retailer NotOnTheHighstreet.com and tech recruitment firm La Fosse Associates – aimed to act as a

springboard for career development for women working in digital tech. The programme, launched in 2016, provides one-to-one mentoring, matching 11 mentees with 11 high profile mentors.

Mentoring For Scale, Dublin, Ireland

Mentoring for Scale is a monthly, invitation-only, event run by The Office of the Dublin Commissioner for Startups ('Startup Dublin'). It is targeted at firms in the early stages of scaling, who have a fulltime team, revenue and an established and growing international customer

base. Firms apply to the scheme and, if selected, are matched with experienced serial entrepreneurs – typically people who achieved multi-million dollar revenues and exits. Startups are selected with help from Enterprise Ireland, based on criteria including readiness to scale.

Business Angels

Business angel investors are wealthy individuals who invest their own money directly into young startups – in Europe, they were estimated to have invested over €6 billion in 2015.⁹² As such, they are potentially even more important in early-stage investment than venture capital firms, though often much less visible.^{93, 94}

Additionally, angels often serve as mentors for the startups in which they invest. Controlling for the quality of startups, research has shown that business angels have a positive impact on the growth, performance and survival of the businesses that they invest in, as well as serving as an important gateway to follow-on funding.⁹⁵ Significantly for

digital entrepreneurs, ICT and mobile technologies comprised half of all European angel deals in 2015.⁹⁶

Many business angels form local syndicates in order to collaborate in sourcing and screening deals, sharing due diligence, spreading risk and increasing efficiency. These are often city-level: nearly a third only invest within 50km of home.⁹⁷ Public policy has typically focused on encouraging angel investment through tax incentives, co-investment funds, promotion of networks and associations, and investor training to educate other wealthy individuals considering becoming angel investors.⁹⁸

Aqui-Invest, Aquitaine, France

Aqui-Invest was created in 2010 by the Regional Council of Aquitaine, which committed €6 million to target startups and innovative SMEs in the Aquitaine region. Aqui-Invest operates by forming contractual partnerships with other national and regional VCs, business

angels and crowdfunding platforms (it has established 15 such partnerships to date). These partners identify investment deal-flow, and may then invite Aqui-Invest to invest on the same terms. The fund typically takes a minority stake, investing around €50,000 to €300,000 per startup.

Savoie Mont Blanc Angels, France

This angel network formed in order to bring together business angels and entrepreneurs in the Savoie region of France. It has a formal partnership with the Savoie Technolac technology park and

incubator, as well as the Savoie Economic Agency and many of the local city authorities. The network has around 180 members, and has invested around €12.7 million in 65 startups in the last eight years.



**ICT and mobile technologies
comprised half of all European
angel deals**

9 Non-Digital Infrastructure

Why does this matter?

It might be argued that, given the virtual nature of much digital entrepreneurship, physical geography is irrelevant. That is not our view. Indeed, a key message of this guide is that environmental conditions within cities have a strong impact upon entrepreneurs.

Reid Hoffman, founder of LinkedIn, has frequently argued that the key factor within a startup ecosystem is 'network density' - some measure of how well individuals can find and connect with each other. Part of this may be virtual, but there is substantial evidence that physical proximity is important. Contact undoubtedly matters

for knowledge transfer, especially where tacit knowledge is concerned.⁹⁹ There is significant confirmation that personal interaction is important for building meaningful business connections.¹⁰⁰

For these reasons, cities which make it easier for entrepreneurs to connect with potential investors, advisors, customers, clients, and colleagues have an advantage. Urban planning policies which promote mixed-use developments, affordable space for new business, and allow building use to evolve, will also be supportive.



Mobility

Most local policymakers will already be acutely aware of the importance of physical mobility within cities. However, it is worth reiterating its relevance for a dynamic business environment. Recent research shows that reducing the travel time between VC firms and their

portfolio companies does indeed lead to more attention and better performance, including increased likelihood of successful exits.¹⁰¹ On a macro level, there is also some evidence that road building projects may increase the entry of new firms.¹⁰²

North East Air Route Development, Newcastle, UK

In 2006, Newcastle airport used £531,000 of state aid to support the establishment of new routes between Newcastle and the cities of Copenhagen, Bergen, Inverness, and Krakow. The funding

was used to offset the risk for airlines offering these new routes and help with the marketing of the Newcastle as a place to visit and do business in.

Mobility as a Service Alliance, Helsinki, Finland

Mobility as a Service (MaaS) is a concept coined by the Finnish government, which involves combining information on all transport options offered in the city into a single mobile platform to provide a seamless transport service. The Mobility as a Service Alliance is a public-private partnership which brings all the relevant mobility actors in Helsinki, from the Ministry of Transport & Communication to taxi drivers, to test the implementation

of the MaaS service. The platform is managed by the MaaS Global startup, which uses the Application Programming Interfaces (APIs) from the transport services to provide an alternative to car ownership. Beyond propelling Helsinki's mobility services ahead of the digital revolution, this initiative reveals the possibilities enabled by opening APIs and data sets for both the city and startups.

Free Public Transport in Tallinn, Estonia

In 2013, Tallinn became the first EU capital to provide free public transport to its residents. To use it, a commuter needs to be a registered resident in

Tallinn. While the city only saw a slight increase in usage, the initiative resulted in more than 10,000 city dwellers deciding to register as residents, which

led to a €10 million increase in the city's revenue. Other smaller European cities (such as Templin in Germany or Aubagne in France) have since tested

this policy with varying degrees of success; some have seen the number of commuters increase dramatically.

Science Parks and Incubators

Many cities have established science parks, often as part of their local economic development strategy. These are typically located out of town, often with incubation facilities and university linkages. Although they are often a core component of the innovation infrastructure of a city, they are not a 'quick fix' for stimulating entrepreneurship. One study suggests that the establishment of a science park takes at least ten years; for that reason, we will not discuss policies relating to their formation.¹⁰³

Whilst some parks have gone out of their way to welcome digital startups, others seem not to have kept pace with the changing nature of innovation and offer predominantly sterile, isolated, R&D-intensive facilities which are unwelcoming to many digital entrepreneurs. Since many science parks benefit from public funds, subsidised services and supportive planning policy, it may be appropriate for policymakers to ask whether they are fulfilling their purpose and remain appropriate for the broader innovation needs of the city.¹⁰⁴

Digital Plaza, Birmingham Science Park Aston, Birmingham, UK

Birmingham Science Park Aston is owned by Birmingham City Council. It was founded in 1982, making it the UK's third oldest science park. Aware that the science park needed to remain focused on the future, the management decided to split it in two, distinguishing 'Innovation Birmingham Campus' from

the remaining, more traditional, 'Science & Technology Campus'. The Innovation Birmingham Campus is deliberately targeted at digital startups, with an incubator focused on digital health, intelligent mobility and internet of things. The aim is to expand the existing buildings into a £35 million 'Digital Plaza'.

Urban Innovation Districts

Innovation districts may sound somewhat similar to science parks, or else conjure up images of the corporate campuses that dot suburban areas across global metropolises. However, the concept is rather different, and intended to describe vibrant, accessible, mixed-use urban

areas where established innovative companies mingle with startups, incubators and accelerators.¹⁰⁵ The idea is that innovation districts are focused more on knowledge-intensive, open innovation and interactions between people – and hence develop in urban areas rather

than the relative sterility of out-of-town science parks.¹⁰⁶ Whilst some areas have developed organically, others have been consciously created by local authorities

through a combination of planning policy, collaboration with knowledge industries and incentives for key anchor tenants.

Boston Innovation District, Boston, USA

This waterfront innovation district, spread over 1,000 acres of prime but underdeveloped real estate, was the brainchild of Boston's mayor. The development aims to help generate and test civic-tech ideas, provide inclusive and sustainable growth to the region and promote open public collaboration between the various stakeholders. For example, District Hall is a multi-purpose civic space in the innovation district for community members to gather in order to discuss and exchange ideas. Not too far away is Factory 63, an onsite live/work space offering the versatility of home and office in the same venue. A defining feature of innovation districts is that they

are trendy, and Boston's has an array of nightlife spots, restaurants and cultural attractions. In addition, it is suitably connected to all the major inter and intra city transport links; Logan airport, MIT, and downtown Boston are all within 15 minutes by public transport. In terms of performance so far, according to numbers published on their website, since 2010 the Innovation District has created 5,000 new jobs in 200 companies, of which 30 per cent were in the tech sector. Close to 40 per cent of the companies utilise the coworking spaces provided, or are in incubation programmes, and a quarter of all startups on site are very small outfits with ten employees or fewer.

22@Barcelona, Barcelona, Spain

With the stated goal of urban, economic and social refurbishment, the Poblenou industrial area of southeast Barcelona has been repurposed into the 22@ Innovation District. This region, which housed mostly decrepit and abandoned factories, was redesignated by a special city ordinance to host residential, commercial and also public properties. In this sense, it's a compact city in and of itself, with research, training and tech transfer facilities, alongside subsidised housing plots and green areas. The onsite facilities are diverse and bring together talent concentration in universities which offer especially topical programmes and courses, a clustering of innovative companies in the media, ICT, MedTech,

energy and design fields, and a number of technology centres (like the Energy Research Institute of Catalonia and the Barcelona Media Innovation and Digital Technology Centres). There are also the expected networking events, venues and roster of services available to companies looking to be located in the 22@ Innovation District. A specific strategic move made by 22@ is to host a LANDING Programme which make it easy for foreign tech business to access the Spanish Innovation system via an international incubator programme. In terms of overall success of the 22@ Innovation District, as per their website, they now host over 7,000 companies, of which nearly half (47.5 per cent) are new startups.

Coworking Spaces

Coworking spaces typically accommodate communities of independent but like-minded freelancers and startups, usually on very flexible terms. Such spaces have long existed, but have exploded in number in recent years. Besides offering a physical home to an early-stage startup,

they can often help promote networking and learning between young companies undergoing a similar startup journey. Whilst nearly all coworking initiatives are private initiatives, policymakers may be able to lend their support through, for example, lower business rates.

Station F – Halle Freyssinet, Paris, France

Station F is a project to convert the historical Parisian building Halle Freyssinet into the world's largest startup campus. Xavier Niel, a successful French entrepreneur and investor, bought the 34,000sq meter space, to be opened in 2017, as a solution to the fragmented startup ecosystem in France. The campus will offer coworking spaces, an auditorium to host events, 'fablabs', 3D printers, wood and metal workshops, pop-up stores, social spaces and many opportunities

for startups to meet partners, investors and anyone involved in the dynamic startups ecosystem. This initiative, as well as many other similar ones (see Factory Berlin or Google Campuses) offer a space where ideas and knowledge can be shared freely. By attracting a pool of entrepreneurs and innovators, Station F is designed to attract stakeholders and talents from across the spectrum, thereby stimulating the entrepreneurial environment of a city like Paris.

Office Space Matchmaking Service, Ireland, Dublin

In 2016, the Dublin Commissioner for Startups launched a new initiative for startups in need of working space. This simple scheme matches startups with companies that have vacant office space. This is particularly valuable in Dublin, where the commercial property vacancy rate fell from 24 per cent in 2010

to only 9 per cent in 2015. Although it is expected that some firms will charge for their space, since corporates often find that interaction with startups rejuvenates their corporate culture and increases entrepreneurial behaviour amongst their employees. Other firms may find that interaction with startups is its own reward.

10 Skills



Why does this matter?

Many investors say that the most important factor in the success of a startup, digital or otherwise, is the team. No idea, however brilliant, will make up for a dysfunctional team which cannot execute. Finding employees with the right skills, attitude and experience is crucial. Unfortunately, many digital firms report a shortage of talent, which hinders their scaling – some research indicates that skills constraints may be a greater inhibitor for innovative small firms than capital.¹⁰⁷ Furthermore, the digital skills gap in many European cities shows little sign of closing.¹⁰⁸

It should also be recognised that digital entrepreneurs need more than coding skills: 'softer' skills such as persuasion, selling, evaluating risk, identifying opportunities, strategic thinking, resilience and self-confidence are also important.

English language skills, too, clearly help in internationalising one's business. Some of these skills may be adequately delivered via formal education; others might be better learned via more experiential means.

Policy here tends to involve nurturing native talent through existing educational institutions, intervening where needed to promote relevant skills in the curriculum and involve experienced entrepreneurs in programmes; co-opting other organisations, including private companies, to deliver more practical training; and importing skilled talent via immigration schemes. As these are typically national prerogatives, local policymakers may need to develop and deliver initiatives in coordination with national counterparts.



Enterprise Education

Schools, colleges and universities are sometimes criticised as being too theory-oriented and lacking connection with the 'real world'. Indeed, the rise of the accelerator movement can be seen, in part, as due to a lack of practical entrepreneurship training. Fortunately, this has changed rapidly in recent years, with many schools and colleges offering students the courses and tools needed to start their own business.

From a policy point of view, the focus is typically on persuading educational institutions to embed enterprise education

within the curriculum (rather than offering as an 'add-on'); building multiple initiatives and types of support (such as physical space, IP advice, mentorship, business plan competitions, hackathons, pitching days, student enterprise societies, connections to VCs, in-house funds, networking sessions, and so on); and nurturing an ecosystem around the institution itself (which may involve alumni, local businesses, and so on).

BSc Business Enterprise Programme, Buckingham, UK

With many business schools being criticised for being overly theoretical, the University of Buckingham decided to take a more practical approach to undergraduate venture creation. Students who enroll on the BSc in Business Enterprise must start their own business as an integral part of the degree programme.

Within four months of the course starting, students must pitch an idea to a business angel panel, with successful pitches awarded up to £5,000. The students then develop their businesses over the remaining 18 months, and may buy it for a nominal sum on graduation.

Digital Business Academy, UK

The Digital Business Academy (DBA) is an initiative promoted by TechCity UK which aims to improve the entrepreneurial skills of the general population. It offers a free online digital business course covering key skills needed to start a business such as product development, brand building and business finance. Lessons include accessible videos with practical advice from experts and entrepreneurs

as well as tools like self-assessment tests. To incentivise people to complete the course, the DBA offers rewards, such as startup loans, free coworking space, paid internships and free mentoring. Offering free or highly subsidised online learning courses potentially means reaching a wider range of students, while also keeping the costs relatively low.

Digital Education

Most governments are investing heavily in digital education and 'e-skills'. Many countries now have dedicated programmes beginning with primary and secondary education and extending to the entire population as part of vocational training and 'life-long learning'.¹⁰⁹ Governments have an important role in listening to industry to determine which skills are in demand, and feeding back to educational establishments concerning what kind of training is effective. Several countries have special digital literacy initiatives for groups who lag behind (e.g. older people and women).¹¹⁰

Schools are an obvious area of focus. Unfortunately, there are massive differences between schools in levels of ICT intensity.¹¹¹ Part of the problem is a lack of skilled teachers; for that reason, several countries offer additional incentives for people to train (or retrain) as computer science teachers, in order to build capacity. Other initiatives are focused on parents, since there is clear evidence that children who are exposed by their parents to innovations in given technological field are more likely themselves to become innovators in that same field.¹¹²

Outside the school system, policies tend to focus on career support, job matching, awareness raising, ICT professionalism and skills gaps analysis. Common mechanisms include Massive Open Online Courses (MOOCs), ICT apprenticeships, or co-opting leading ICT companies to provide specialist training for hard-to-fill vacancies.

Specific, high-profile examples include: Code Club, UK – a nationwide network of volunteer-led, after-school coding clubs for children; Coder Dojos – a worldwide movement of free, volunteer-led, community-based programming clubs for young people; #HITSA, Estonia – a non-profit association which runs ICT summer schools and various other educational programmes; CodePact, Netherlands – a public-private partnership, led by Startup Delta, which aims to teach 400,000 children how to code.

On a city or regional level, where local authorities have control over schools, policies are typically aimed at ensuring that schools (from primary schools upwards) have appropriate IT equipment; that the curriculum includes digital skills; that teachers are themselves appropriately digitally-trained and incentivised to include digital skills in their lessons; and that parents appreciate the need for their children to gain digital skillsets.



The rise of the accelerator movement is due, in part, to a lack of practical entrepreneurship training

EVOLIRIS ICT Reference Centre, Brussels, Belgium

The ICT Reference Centre for the Brussels region was set up in 2006, to be a single unified body which coordinates, evaluates and advertises ICT training in the Brussels region; since then, it has evolved to act as a matchmaker, connecting both sides

of the labour market. It is funded partly by government and partly by members – which includes unions, trade associations, universities, education providers and the Microsoft Innovation Center Brussels.

Finish IT, Karlsruhe, Germany

In the region of Karlsruhe, it is estimated that around 15,000 students start an ICT degree every year, but 30 per cent never complete the course. Finish IT was created to help these ‘drop-outs’, as well as the large numbers of skilled immigrants without formal qualifications, to enter the ICT job market. It is an initiative from the Karlsruhe Chamber of Commerce, created in collaboration

with CyberForum (a German non-profit organisation headquartered in Karlsruhe), the city of Karlsruhe, the local public employment service, local private companies and an education provider. The scheme is open to candidates aged 25 or older who have a minimum of one year’s experience in an ICT job, and offers a highly compressed training course leading to a formal qualification.

Connect Chicago, Chicago, USA

Connect Chicago is an initiative that seeks to make Chicago the most digitally skilled city in America. It is a collaborative programme supported by the mayor’s office along with various government agencies (including Chicago Public Library and Chicago Public Schools) and institutional funders. The initiative

runs numerous training events (as well as advertising events run by third parties), and provides a centralised repository of free resources, curricula, and tools for digital learners of all ages and backgrounds – including adult learners and parents, students and youth, nonprofits, and trainers.

Attracting and Retaining Talent

'Brain drain' is real a problem for many European economies. Individuals often leave their native country in search of work or in order to study, but then find

little reason to return home. Initiatives to counter this have, however, been trialled with moderate success.

Talendid Koju, Estonia

To help attract Estonian expats back to their homeland, in 2010 the Estonian Chamber of Commerce and Industry launched an initiative called Talendid Koju. This is an online platform that connects Estonians living abroad and looking for a job with employers looking

for talented additions to their workforce. Via the platform, Estonians can see the most up-to-date job opportunities while not yet back in the country, and employers based in Estonia can find candidates with a more international working experience or background of the labour market.

Atspēriens, Riga, Latvia

Atspēriens, meaning 'take-off' in Latvian, is a grant programme which has three interrelated aims: to motivate Latvian expats to return to Riga, while also supporting the growth of SMEs, and raising living standards. The programme is run by the Riga City Council in partnership with AS Swedbank; it offers SMEs grants of up to €15,000 to cover expenses related to setting up a new

venture, such as obtaining business licenses, legal advice or designing a commercial website. The fund has several priority sectors – including information and communication technology. Now in its eighth year, this year's programme has a total budget of over €100,000 and serves as an interesting and practical example of how to reverse the brain-drain that may affect certain countries.

Startup Visas

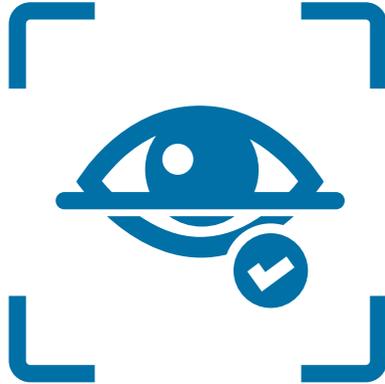
Importing skilled labour is a quick way of alleviating talent shortages. Startup visas give skilled immigrants the right to relocate and grow their business in a foreign country for a specified amount of time. This policy intervention aims to attract talented startup founders and other entrepreneurs from abroad, in the hope that they might drive up the productivity and employment of the host country through their innovative and high-impact businesses.

By their nature, most of these initiatives are national, as per the examples below. However, several cities have operated schemes to advertise national visa schemes, find local sponsors, guide prospective immigrants through the process, and provide advice about relocation.

Expatcenter Amsterdam, Amsterdam, The Netherlands

The Expatcenter Amsterdam is a joint initiative of the city of Amsterdam and surrounding towns, along with the Immigration and Naturalisation Service and the Dutch Tax Administration. It aims to provide a 'one-stop-shop' for international talent, streamlining and assisting with residence and work permits (including the startup visa), as well as registration with the Amsterdam municipality. The Expatcenter is equipped

with biometric devices that can record and read photos and fingerprints for identity documents. It is open both to companies seeking highly skilled migrants, as well as international entrepreneurs seeking to relocate to Amsterdam. The Expatcenter produces a monthly newsletter to keep employers and immigration professionals informed of the latest regulations. In its first seven years of operation, it assisted 37,000 individuals.



Startups Visas

Startup Permit The Netherlands

- One year.
- Non-EU entrepreneurs have one year to start and develop their business.
- He/she has to be guided by an experienced mentor based in the Netherlands (facilitator).
- Both the facilitator and the startup entrepreneur are entered in the Commercial Register of the Chamber of Commerce.
- The entrepreneur should have enough financial resources to subsist for the duration of the startup permit.
- After one year, the startup is able to apply for a self-employment scheme under favourable conditions.

French Tech Ticket France

- One year.
- Competition / programme to attract promising international teams to France.
- Limited number of seats available to participate in the programme (70 seats in 2016).
- Any English-speaking foreign entrepreneur (max three people per team - only one French national) can submit their innovative startup project. The project must be built and developed in France and founders must be based in France and work full-time on the new company.
- As an award, the selected teams receive:
 - €45,000 per team (€20,000 to cover personal costs and €25,000 to cover professional services).
 - Residence Permit.
 - Acceleration programme (including masterclasses and networking events).
 - Incubation in one of the 41 partner incubators (including office space).
 - Additional support to relocate easily within France.
 - Help-desk for all administrative issues.

Startup Denmark

Denmark

- Two years initially with the possibility to extend for a further three years.
- For non-EU/EEA entrepreneurs (up to two people per company) who wish to launch and grow their business in Denmark.
- Entrepreneurs have to pay a fee of approx. €235 to submit their business ideas to the Danish Business Authority.
- The entrepreneur has to prove that they have enough financial resources to subsist during the length of the permit (one year).
- Once founders receive the visa, they can access various programmes and subsidy schemes provided, including free tailored counselling in public business development centres.
- The founders' spouses and children have the right to receive education and healthcare in Denmark.

Italia Startup Visa

Italy

- One year with possibility of extension for another year.
- For non-EU entrepreneurs who set up an innovative company in Italy, or wish to prolong their stay in order to set up an innovative company (Italia Startup Hub).¹¹³
- Simplified registration mechanisms (when compared with other provisions in Italian bureaucracy).
- Entrepreneurs have to possess certified financial resources of at least €50,000 to spend on business development.
- Entrepreneurs have to provide evidence of securing suitable accommodation.
- Entrepreneurs have to provide evidence that income earned in previous financial year was above €8,500.

Startup Exchange

Tel Aviv, Berlin, Paris

- Three months.
- Partnership programme to connect startups from Paris, Berlin and Munich with the vibrant ecosystem in Tel Aviv (considered amongst world's best startup ecosystems).

Entrepreneurs receive:

- Free co-working space.
- Access to meet-up and other events available in Tel Aviv.
- Support to integrate into Tel Aviv's startup ecosystem.
- Support during the visa application process and for finding housing.

11 Policy Process and Implementation

Why does this matter?

The preceding sections addressed a variety of themes related to spurring digital innovation at the local level. Several of the themes described above overlap in their conceptual dimensions as well as in their practical application; many of the examples given could clearly have been placed under multiple headings. This means that it would be beneficial to look at how policy goals, and the variety of instruments that target the same groups of actors, interact. Are they complementary or counter-productive? What can be done to achieve synergies

and minimise negative interaction between instruments? How can local bodies design a creative yet workable blend of policies and instruments? How are the assumed beneficiaries of programmes consulted?

This section deals with how to think about and tie-together the various aspects of policymaking and policy implementation, given the special needs of digital startups and scale-ups. It also touches on how policymakers can help the ecosystem help itself.



Cluster Policies

Clusters are geographical areas of concentrated economic activity in interconnected industries. Given their economic importance – one report says European clusters account for around 39 per cent of jobs and 55 per cent of wages¹¹⁴ – much has been written on policies to support them. It is impossible to summarise that complex literature here, but we note the conclusion of one comprehensive study, that: “there is no clear and unambiguous evidence that clusters policy is able to sustainably deliver innovation outcomes or improve levels of entrepreneurship”.¹¹⁵

This is not to say that clusters themselves have no benefit – indeed, they do seem to be important in stimulating the exchange

of ideas, building partnerships, and attracting complementary industries.¹¹⁶ However, cluster *policy* is often vague, misdirected and lacking in evidence.

That said, several policy conclusions emerge from the literature: one is that clusters almost always emerge spontaneously and that trying to force their creation is usually doomed to failure. Instead, policymakers should aim to be aware of existing strengths and guide clusters towards higher value-added activities. A focus on promotion and establishing linkages seems more cost-effective than bricks-and-mortar investment. Early involvement of the private sector is beneficial.

Tech City, London, UK

TechCity was launched in 2010 by the UK Prime Minister, to support the East London tech cluster known as Silicon Roundabout. It employs a holistic approach which includes several of the themes we have covered in this guide, namely: advocacy, skills training, scaling support, international promotion, and connecting cities and regions across the country – all underpinned by evidence-based policy research and evaluation. Specific programmes include the Digital Business Academy, which has trained over 20,000 people in setting up and running a digital business; the Future

Fifty and Upscale programmes, which help 75 fast-growing startup companies to scale rapidly; HQ-UK, which promotes the UK as an international tech hub; the Tech Nation Visa Scheme, which approves people applying for the Tier 1 Exceptional Talent Visa scheme; the TCUK Cluster Alliance and Tech North, which shares best practices with other clusters; and finally, the Tech Nation research programme, which maps the nature and scale of the UK’s digital economy to provide policymakers an overview of the health of the sector.

Ecosystem Coordination

A slightly different notion to cluster development is ecosystem coordination. Even if there is not a specific digital cluster, many cities are actively facilitating or federating their ecosystem by creating bodies that link the activities of the organisations concerned – such as universities, funding bodies, incubators, accelerators, coworking spaces, service

providers (like legal, financial services etc.) and large corporations. This helps the city to take a structured and long-term approach to developing digital entrepreneurship. Such bodies can also help investors, customers and other partners to navigate the seemingly-chaotic and rapidly-changing startup environment of a city.

Startup Amsterdam, Netherlands

Startup Amsterdam is a public-private initiative, founded by serial entrepreneurs and governmental bodies specifically to federate and unite the startup ecosystem in Amsterdam.¹¹⁷ Specific measures include: convening startup and coding academies alongside online job advertising portals to attract and foster talent; organising launch events and corporate partnerships to source clients; hosting talks, networking

events and online dialogues to create and curate interesting content; bring in funders to ensure enough growth capital for startups; and finally, mapping and branding startup activities to increase visibility and cohesion. The initiative also works with Startup Delta (the body that oversees the entirety of Dutch startup activity), so as not to duplicate efforts and resources, while at the same time placing Amsterdam as its centrepiece.

New Co, Helsinki, Finland

The city of Helsinki and Helsinki Enterprise Agency banded together to form New Co, a branding and marketing service entity that promotes entrepreneurship, provides business advice, and lends support to entrepreneurs. This one-stop shop provides information on how

to set up and grow a startup business, including resources on applying for startup grants, business development coaching, accelerator programmes, network building opportunities, a calendar of events, and a job posting page.

UI Labs, Chicago, USA

UI Labs started in 2014 with the idea of creating a forum for collaboration and finding solutions to large-scale challenges (such as IoT or Smart Cities) which are too big for just one

organisation to tackle. By bringing more than 250 partners around the same table, including leading industries, government, startups, and universities, UI Labs is able to develop a portfolio of

transformative partnerships. As a result, UI Labs gave birth to two growing world-leading innovation accelerators: the Digital

Manufacturing and Design Innovation Institute (DMDII) and the City Digital lab.

Resident Concierge, Dublin, Ireland

In 2016, the Office of the Dublin Commissioner for Startups (aka Startup Dublin) appointed a resident concierge to act as a point of contact for startups or anyone interested in working with

startups in Dublin. The concierge service offers to provide information about Dublin and make introductions to Dublin's startups, investors, government and other ecosystem players.

Public Engagement

Although this guide is not concerned with digital government per se, part of the process of good policymaking must be engagement with stakeholders to identify areas of need, gather ideas and test potential options. As discussed earlier, however, startups are typically highly

resource-constrained, and hence may be less likely to participate in conventional consultation processes. However, there are a number of interesting examples of how digital entrepreneurs can be better engaged.

G0v.tw, Taiwan

G0v.tw is a large 'civic tech' community in Taiwan, which began around 2012 and has grown to over 1,000 contributors. It is rooted in the open-source movement and dedicated to building digital tools for better public engagement, online democracy and

government transparency. The Taiwanese government has actively embraced this hacker community, participating in government hackathons, joint events and active discussion, through online tools like Pol.is, using the expertise of this community to make better (digital) policy.

“We are in a period of extraordinary innovation in the tools of government.”

Geoff Mulgan, Nesta

Participatory Budget, Lisbon, Portugal

Lisbon 'Participatory Budgeting' is a form of citizen participation, in which residents can decide how a portion of the municipal budget is spent. Citizens present proposals to the city, and then vote online for the projects which they want to see included in the city's plan in the following year. For 2016/17, €2.5 million euros was allocated to be spent through this process. One interesting

initiative that was funded in this way is the Innovation Centre Mouraria; this is a creative hub which incubates and supports local startups in the creative industries, providing office space and various other in-house services such as support for the marketing of products and services, mentoring, education and training programmes, as well as funding opportunities and preferential loan rates.

GO TO 2040, Chicago, USA

GO TO 2040 is the long-term planning process for the Chicago region. Recognising that public engagement was crucial, the Chicago Metropolitan Agency for Planning (CMAP) launched a large-scale initiative to encourage residents to express their priorities for the future of the region. This involved interactive software called MetroQuest, available both online and through specially-

installed kiosks in high-footfall locations around the region; booths at county fairs, street festivals, sporting events, and other public events; local community organisations; workshops; conventional media as well as social media and direct email campaigns. As a result, CMAP received over 20,000 responses – many relating to entrepreneurship.

Mapping City Resources

Maps serve multiple purposes. When it comes to digital startups, it can be helpful to understand where such firms are physically located – especially if their business activities otherwise leave little obvious sign. Maps can help identify clusters, their structures and their unique assets, allowing policymakers to proceed from a better-informed position. Importantly, however, it should be realised that ‘digital’ startups often do not reveal themselves through conventional business data – many standard industry classification schemes, for instance, have failed to keep pace with digital innovation and often obscure more than they reveal about the nature of local businesses. The most informative maps may therefore need to use novel data-gathering techniques and alternative metrics.

Maps also serve a wider purpose, showcasing an ecosystem and helping different elements locate each other. Presenting city-level ecosystem data in map format is a visually appealing, easy to navigate and relatively cost-effective method of information sharing. Through a combination of visualizations, charts and table data, platforms can showcase the contributions being made in each sectoral cluster. Well-designed platforms allow the data to be dynamically linked, making real time updates possible. As well, filtering mechanisms which allow the user to only extract the data they need, making the map embeddable, and any analysis tools available, are an added bonus.



Accelerate St. Louis St. Louis, Missouri, USA



The aim is to provide a one-stop-shop to:

- A. Connect entrepreneurs to resources and investors who can help them in launching and growing their businesses in the St. Louis region.
- B. Serve as a platform for showcasing the region’s expanding entrepreneurial movement to a broader audience.



Brings all of the region’s entrepreneurship support organisations (investors, accelerators, incubators, community enablers, academic institutions, events, service providers, established companies) into a single virtual space which can then guide and direct startups and small businesses to the resources they need most, based on a variety of business criteria.



Accelerate St. Louis is a collaboration between the St. Louis Economic Development Partnership, St. Louis Regional Chamber, and the U.S. Economic Development Administration.



Sortable/searchable list.

TechIreland

Republic of Ireland and Northern Ireland



The aim is to provide the most comprehensive map of Ireland's startup ecosystem and community.



Managed by Startup Ireland.



Offers a sortable and filterable information on incubators, accelerators, funding opportunities, startups, networks, coworking spaces, research bodies and other associated services.



Embeddable, RSS Feed, searchable, filterable and sortable functions.



Tech Map London

Greater London Metropolitan Area, United Kingdom



The aim of the project, the first to map an entire science and technology sector, is to show the contribution of the tech sector to London's economy.



Tech Map London is supported by The Mayor of London and London Enterprise Panel.



Data is collected that identifies the trends in turnover and number of employees for London companies in different boroughs.



Filterable map visualisations, charts and tabular data on startups, scale-ups and other bodies providing scientific and technological services.



What



Who



How



Tools

Annex 1: Policy Action Guide

We hope that, having read through this booklet, you will turn inspiration and ideas into concrete policy actions to help digital startups. We recommend starting with the following three steps:



First

Perform an evaluation of your local digital entrepreneurship ecosystem. This benchmarking process will help establish which facets need the most immediate policy support. A good way to accomplish this is using tools such as the European Digital City Index to compare your city against others of a similar size and profile. Gather as much data as possible, from both public and private sources, regarding existing policies and initiatives in your city.

Second

Having identified the most pressing problems in your local ecosystem, use the next few pages as a template to guide you through the basics of the policymaking, implementation and evaluation process. The 'Idea Bank' itself should provide some inspiring options, but it is vital to perform your own due diligence, such as consulting experts in the field and drawing on previous evaluations of digital initiatives.



Third

Consider the necessary ingredients for formulating the right policy mix. Think particularly about how your proposed alternatives fit and react with existing policy structures. Are the policies likely to interact in a stable and productive manner? How are the various stakeholders affected? Is the monitoring and evaluation plan robust?



Policy Analysis Guide



Designing a useful mix of policies to support digital entrepreneurship suited to your environment can be a challenging process. Below is a simple ten-step guide to this process. Keep in mind that these steps comprise an idealised policy process and are not so straightforward in reality.



1 - Problem and goal formulation

First identify key stakeholders, relevant existing laws, initiatives and regulations, prevalent perceptions and key data sources from which to draw upon. On this basis you may identify and address the underlying problem.



2 - Evidence gathering

Beware of falling into a bottomless data pit. Get in touch with policymakers who have already addressed your problem to secure evidence of outcomes from prior policy actions.



3 - Contemplating alternatives

Practices adopted in different environments can be difficult to transfer over to your context. Nevertheless, it is necessary to learn from other initiatives which seek to address similar problems. This booklet is a useful source to search for such alternatives.



4 - Selecting criteria

Most policy formulation requires specifying criteria to evaluate alternatives. However, some common ones, including efficacy, efficiency, feasibility, fairness, or legality are relevant to most policy implementation. Try and quantify these criteria to help weigh the alternatives at your disposal.



5 - Projecting outcomes

This step involves anticipating how the alternatives will work in practice. Lay out the data gathered for each option to make an informed decision. Be mindful about uncertainties: what could go wrong?



6 - Confronting trade-offs

On the basis of the projected outcomes, review each alternative's unique combination of advantages and disadvantages. This will help identify the most preferable option.



7 - Taking a decision

Choose one of the alternatives and try to get everyone on board with it. Tell a compelling story and use existing successful initiatives to support your policy arguments.



8 - Implementation

Before executing the plan, identify the metrics for evaluation. While delivering the activities, keep capturing relevant data to ensure that the intended outputs are delivered.



9 - Monitoring and Evaluating

Set up evaluations throughout the policy implementation process to reveal whether the project is achieving the intended objectives and to provide information for corrective actions.



10 - Feeding back

Use the outcomes of the final evaluation to provide evidence on what works, why it works, for whom and under what conditions.

Policy Analysis Tool



This UC Berkeley's Goldman School of Public Policy's matrix help policymakers think about the alternatives, the criteria, the outcomes and the trade-offs associated with the design of policies. Find below an example of how to use it.



1 Fill in the problem to be solved at the very top.

2 In the left-hand column, insert alternative ways to address the problem.

3 In the first row, add the relevant criteria associated with the problem.

4 In the cells lay out the data to gather and projected outcomes.

5 Compare each policy option and try to evaluate the trade-offs.



Problem:
Negative perception of entrepreneurship

Criteria	Administrative costs	Maximise impact on population aged 15-25	Efficacy and impactfulness of the initiative
Alternatives			
1. Championing entrepreneurial culture through sharing of success stories through media channels (E.g. Enterprise Lithuania)	Data to gather - What are the costs associated with events, advertising and media exposure? Maybe hiring a part-time editor? Outcome - Allocate budget to cover costs over a set period until idea gains traction.	Data - What are the relevant media/meeting platforms? (Meetups, journals, social media, televised events?) Outcome - Which channels work better than others? What type of content is more useful (video, audio, blogs etc?)	Data - Time frame - how long before seeing results? How successful have similar media campaigns been in other cities? Outcome - Pros and cons of short vs. medium term media campaign commitment vis-à-vis impact.
2. Advertising an entrepreneurial career as a career option to students in secondary school (e.g. Option Startups in Paris)	Data - Costs associated with hosting an entrepreneurship-based career fair? Compensation for speakers? Outcome - Generally, low overhead costs.	Data - What proportion of students in this cohort are influenced by career fairs? What aspects of entrepreneurship most appeal to this age group? Outcome - Possible high impact to target group.	Data - How successful are career fairs generally? Compile a list of the most inspiring speakers? Outcome - Potentially high impact at low cost, but may have little impact without support from parents.
3. Championing entrepreneurship by developing a city brand and giving visibility to the local ecosystem (e.g. La French Tech, Dublin Makes Me)	Data - Advertising costs for people to recognise the brand? Outcome - Substantial expenses over long time period. Requires a team to carry on the operations.	Data - Which age group and demographic would react to branding? How to appeal to the 15-25 age group? Outcome - Potentially low impact on this age group.	Data - Will there be sufficient endorsement from existing entrepreneurs? How hard will it be to align all stakeholders in ecosystem? Outcome - High impact if entrepreneurs adopt the brand and help in dissemination/promotion.



From the EDX online course: BerkeleyX: Policy01x Solving Public Policy Problems: UC Berkeley's Eightfold Path
 For more details see: Bardach, E. A Practical Guide for Policy Analysis - The Eightfold Path to More Effective Problem Solving, 2012. SAGE: Los Angeles

Policy Analysis Tool



Use this empty matrix to frame a specific problem in your digital entrepreneurship ecosystem, propose policies that would be good alternatives, and then fill in criteria for analysing and monitoring them. You can keep the fold out open while you browse through the 'Idea Bank' in order to find alternatives.



Problem:

Criteria			
Alternatives			

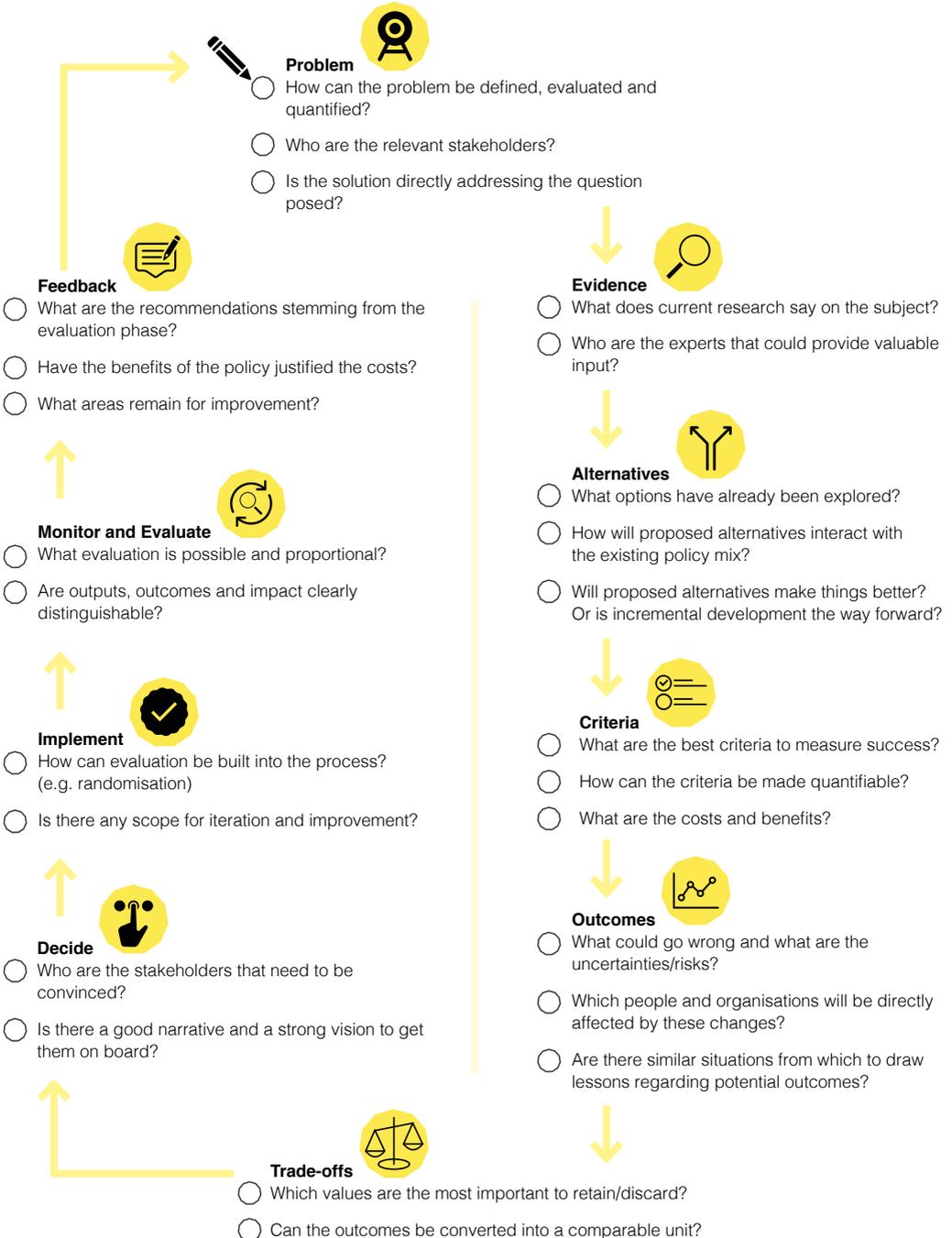


To help the process of open policy-making, you may like to see the toolkit here:
<https://www.gov.uk/guidance/open-policy-making-toolkit/low-cost-tools>

The Policymaking Cycle



Ask yourself those questions at each of the steps of the policymaking cycle



Notes



A series of horizontal dotted lines for writing notes, filling most of the page.

Annex 2: Links to Initiatives

1. Access to Capital

Debt

Berlin Start, Investitionsbank Berlin – <http://bit.ly/Bstart>

Brupart, Finance Brussels – <http://bit.ly/Brupart>

Equity Investment

Innovation Starter fund, EC Growth – <http://bit.ly/InnoStart>

London Co-investment Fund – <http://bit.ly/lcifund>

Istanbul Venture Capital Initiative (iVCi) – <http://bit.ly/iVCinitiative>

Crowdfunding

Crowdfund Angus, Crowdfunder – <http://bit.ly/Cangus>

Grants

Call Start Tech Vienna, Vienna Business Agency – <http://bit.ly/TechVienna>

i.JAM Micro-funding initiative, Media Development Authority Singapore – <http://bit.ly/iJAMinita>

YouWIN! – <http://bit.ly/Ywin>

Case Study - Hong Kong

The Innovation and Technology Venture Fund, Gov HK – <http://bit.ly/ITVfund>

The SME Export Marketing Fund, Gov HK – <http://bit.ly/ExpMarkFund>

The Enterprise Support Scheme (ESS), Gov HK – <http://bit.ly/ESSscheme>

The SME Loan Guarantee Scheme, Gov HK – <http://bit.ly/SMELGscheme>

The Cyberport Creative Micro Fund, Gov HK – <http://bit.ly/CCMfund>

2. Business Environment

Tax Incentives

SARTUP, New York State – <http://bit.ly/StartupNYtax>

Estonian Tax System, EESTi – <http://bit.ly/EESTirelief>

India Taxes – Startup India – <http://bit.ly/IndiaTax>

Singapore Taxes – IRAS – <http://bit.ly/IRAStax>

Regulatory Measures

Fintech Regulatory Sandbox, Financial Conduct Authority – <http://bit.ly/Rsandbox>

Digital Health Valley – <http://bit.ly/DHvalley>

Fast-track Permits

Valencia Urban Laboratory for Innovation, InnDEA – <http://bit.ly/InnDEA>

Labour Market Regulation

Open Competition and Employee Mobility Clause, Legal info – <http://bit.ly/OCEMclause>

Case Study - Italian Startup Act

Italian Startup Act, Ministero dello Sviluppo Economico – <http://bit.ly/ItStartAct>

3. Digital Infrastructure

Broadband

Community-owned fibre network, FTTHcouncil – <http://bit.ly/fibreAT>

Fibre network, FTTHcouncil – <http://bit.ly/fibreDE>

Connection Vouchers – <http://bit.ly/Cvouchers>

Wireless Connection

Northern Michigan University WiMAX and LTE Network – <http://bit.ly/nmuLTE>

5G connectivity, Commercial Integrator Europe – <http://bit.ly/5Gstock>

Free Tram Zone, Public transport Victoria – <http://bit.ly/FTzone>

IoT Testbeds

City of Things, iMinds – <http://bit.ly/IoTANR>

Bristol is Open – <http://bit.ly/IoTBRS>

Access to Data

Data Amsterdam NI – <http://bit.ly/dataAMS>

Helsinki Region Infoshare – <http://bit.ly/HRIfin>

London Data Store, Gov UK – <http://bit.ly/LONdata>

NYC DOT, nyc gov – <http://bit.ly/NYCdot>

Open Government Data, Wien gv – <http://bit.ly/WienData>

Data Seoul – <http://bit.ly/SELdata>

4. Entrepreneurial Culture

Attitudes towards Failure Entrepreneurial Culture

F*ckup Nights – <http://bit.ly/Fnights>

Enterprise Lithuania – <http://bit.ly/EntreLIT>

Promoting Youth Entrepreneurship

Citrus Saturday – <http://bit.ly/citrusSat>

Option Startup – <http://bit.ly/OptStart>

UStart, DCU Ryan Academy – <http://bit.ly/RUStart>

Founders4school – <http://bit.ly/f4school>

City Branding

Made in NY, Digital NYC – <http://bit.ly/DigiNYC>

Dublin Makes Me, Startup Dublin – <http://bit.ly/DmakeMe>

Case Study - La French Tech

La French Tech – <http://bit.ly/FrTech>

5. Knowledge Spillovers

Collaborative Research and Consultancy

Lambert Toolkit, GOV.UK – <http://bit.ly/LambertTool>

Innovation Vouchers, Enterprise Ireland – <http://bit.ly/InnoVouch>

Growing Enterprises through Technology Upgrade (GET-Up), Agency for Science, Technology and Research – <http://bit.ly/GET-Up>

Facilities Hire

University of Hertfordshire – <http://www.herts.ac.uk>

Cross-Pollination

Contamination Lab, Clab UniCa – <http://bit.ly/ClabUniCa>

Case Study - UC Merced

Office of Business Development – <http://bit.ly/OBDmerced>

6. Lifestyle and Creativity

Cost of Living

Unemployment Benefits, Le Figaro – <http://bit.ly/Ubenefits>

Cultural Quarters and Attractions

Living Innovation Zones – <http://bit.ly/LIzones>

Creative Experimentation

Makerversity – <http://bit.ly/MVersity>

Transmediale – <http://bit.ly/transMediale>

7. Market

Public Procurement Programmes

TenderNed – <http://bit.ly/TenderNed>

New Procurement Act – <http://bit.ly/NewPAct>

Preferential SME Procurement – IISD – <http://bit.ly/SpublicP>

'Buy Blue', University of Toronto – <http://bit.ly/BuyBlueT>

Wien Win, Vienna Business Agency – <http://bit.ly/WienWin>

Pre-procurement Programmes

Startup in Residence, SF Mayor's Office of Civic Innovation – <http://bit.ly/StartResid>

BCN Open Challenge, Barcelona City Council – <http://bit.ly/BCNOC>

#DataCity – <http://bit.ly/dataPAR>

Bigapps NYC – <http://bit.ly/Big-Apps>

Corporate Procurement

Ready to Supply the City, City of London – <http://bit.ly/RSupplyCity>

Smart London Innovation Network – <http://bit.ly/SMInetwork>

Overseas Expansion

Landing Pads, Australia Unlimited – <http://bit.ly/LandingPads>

CTI Market Entry Camps – <http://bit.ly/CTIMarket>

8. Mentoring and Managerial Assistance

Accelerators Support

Mobile Acceleration Programme, mVenturesBcn – <http://bit.ly/MobileAP>

LaunchKC – <http://bit.ly/LaunchKC>

AppCampus, Aalto University – <http://bit.ly/App-Campus>

Mentoring Networks

Girls in Tech Mentoring Programme – http://bit.ly/Girls_Tech

Mentoring for Scale – <http://bit.ly/MentScale>

Business Angels

Aqui-Invest – http://bit.ly/aqui_invest

Savoie Mont Blanc Angels –
<http://bit.ly/MontBlancAngels>

9. Non-Digital Infrastructure

Mobility

Mobility as a Service Alliance –
<http://bit.ly/MAASall>

Free public transport in Tallinn – <http://bit.ly/TALfpt>

Science Parks and Incubators

Digital Plaza, Innovation Birmingham
Campus – <http://bit.ly/digitalPlaza>

Urban Innovation Districts

Boston Innovation District – <http://bit.ly/BostonID>
22@Barcelona, Sh Barcelona –
<http://bit.ly/BarcelonaID>

Coworking Spaces

Station F, Halle Feyssinet – <http://bit.ly/StationF>
Office Space Matchmaking Service,
Startup Dublin – <http://bit.ly/StartDublin>

10. Skills

Enterprise Education

BSc Business Enterprise Programme, University
of Buckingham – <http://bit.ly/BBEprogram>
Digital Business Academy – <http://bit.ly/DigiBisA>

Digital Education

EVOLIRIS ICT Reference Centre –
<http://bit.ly/evoliris>
Finish IT, cyberforum – <http://bit.ly/Finish-IT>
Connect Chicago – http://bit.ly/Connect_Chicago

Attracting and Retaining Talent

Talendit Koju – <http://bit.ly/Talkoju>
Atsperiens, Labs of Latvia –
<http://bit.ly/AtsperiensLabs>

Startups Visas

Expatcenter Amsterdam, I amsterdam –
<http://bit.ly/expatcenter>

Startup Permit, Immigration and Naturalisation
Service – <http://bit.ly/StartPermit>

Italia Startup Visa – <http://bit.ly/ItStartVisa>

Startup Denmark – <http://bit.ly/StartDe>

French Tech Ticket – <http://bit.ly/FTticket>

Startup Exchange Tel Aviv, Tel Aviv

Startup City – <http://bit.ly/StartExch>

11. Policy Process and Implementation

Cluster Policies

Tech City UK – <http://bit.ly/Tech-City>

Ecosystem Coordination

Startup Amsterdam, I AmBusiness –
<http://bit.ly/StartAms>

NewCo Helsinki – <http://bit.ly/NewCoHels>

UI Labs – <http://bit.ly/UI-Labs>

Resident Concierge, Startup Berlin –
<http://bit.ly/StartDublin>

Public Engagement

G0v.tw – <http://bit.ly/GovTW>

Participatory Budget, Lisboa EU Participo –
<http://bit.ly/LISpart>

Go To 2040, CMAP – <http://bit.ly/GoTo2040>

Mapping City Resources

Tech Map London – <http://bit.ly/TechMapLon>

Accelerate St. Louis – <http://bit.ly/AccLouis>

TechIreland, Startup Ireland – <http://bit.ly/TechIre>

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